



Test report No. : 33FE0016-HO-E-R1

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FCC ID : A3LGTS5303B

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SAR TEST REPORT

Test Report No. : 33FE0016-HO-E-R1

Applicant : SAMSUNG ELECTRONICS CO., LTD.

Type of Equipment : GSM/GPRS 850/1900 and WCDMA850 Phone with
BT v3.0(EDR), 802.11b/g/n, EDGE Rx only and Hotspot

Model No. : GT-S5303B

FCC ID : A3LGTS5303B

Test regulation : FCC47CFR 2.1093
FCC OET Bulletin 65, Supplement C (Edition 01-01)

Test Result : **Complied**

Reported SAR(1g) Value

FCC Part 22H	Head	: 0692 W/kg
	Body-hotspot	: 0.720 W/kg (10mm distance)
FCC Part 24E	Head	: 1.02 W/kg
	Body-hotspot	: 0.387 W/kg (10mm distance)
FCC Part15.247	Head	: 1.02 W/kg
	Body-hotspot	: 0.199W/kg (10mm distance)

The highest reported SAR(1g) Value for the device is 1.02 W/kg.

Simultaneous transmission test was excluded. SAR to peak location separation ratio ≤ 0.04 .

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2. The results in this report apply only to the sample tested.
3. This sample tested is in compliance with the limits of the above regulation.
4. The test results in this report are traceable to the national or international standards.
5. This test report must not be used by the customer to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.
6. This report is a revised version of 33FE0016-HO-E. 33FE0016-HO-E is replaced with this report.

Date of test: January 21 to 25, 2013

**Representative
test engineer:**

Hisayoshi Sato
Engineer of WiSE Japan,
UL Verification Service

Approved by :

Takahiro Hatakeda
Leader of WiSE Japan, UL
Verification Service



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<http://www.ul.com/japan/jpn/pages/services/emc/about/mark1/index.jsp#nvlap>

UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

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REVISION HISTORY

Original Test Report No.: 33FE0016-HO-E

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SECTION 1: Customer information

Company Name : SAMSUNG ELECTRONICS CO., LTD.
Address : 416, MAETAN 3-DONG, YEONGTONG-GU SUWON-CITY,
GYEONGGI-DO 443-742, SOUTH KOREA

SECTION 2: Equipment under test (E.U.T.)

2.1 Identification of E.U.T.

Type of Equipment : GSM/GPRS 850/1900 and WCDMA850 Phone with BT v3.0(EDR),
802.11b/g/n, EDGE Rx only and Hotspot
Model No. : GT-S5303B
Serial No. : 355779050000170
Rating : Li-ion Battery (M/N;EB454357VU)
DC3.7V/ 1200 mAh
Option Battery : N/A
Body-worn accessory : Ear phone (typical)
Device category : Portable
Antenna to antenna separation : 74 mm from WWAN antenna to WLAN/BT antenna.
distance : 0mm from WLAN antenna to Bluetooth antenna(shared with BT).
Simultaneous transmission : WWAN can transmit simultaneously with WLAN
WWAN can transmit simultaneously with Bluetooth
WLAN cannot transmit simultaneously with Bluetooth
Receipt Date of Sample : January 18, 2013
Modification of EUT : No Modification by the test lab

2.2 Product description

Radio Specification

Bluetooth (BDR/EDR)

Equipment Type	Transceiver
Frequency of Operation	2402-2480MHz
Type of Modulation	FHSS
Bandwidth & Channel spacing	1MHz & 1MHz
Antenna Type	Cap
Antenna Gain	-5.88dBi

WLAN (IEEE802.11b/g/n-20)

Equipment Type	Transceiver
Frequency of Operation	2412-2462MHz
Type of Modulation	DSSS, OFDM
Bandwidth & Channel spacing	20MHz & 5MHz
Antenna Type	Cap
Antenna Gain	-5.88dBi

GSM

Equipment Type	Transceiver
Frequency of Operation	[Up Link] GSM850: 824-849MHz PCS: 1850-1910MHz [Down Link] GSM850: 869-894MHz PCS: 1930-1990MHz
Type of Modulation	GMSK
Emission Designator	GSM850: 247KGXW PCS: 251KGXW
Antenna Type	PIFA
Antenna Gain	GSM850: -6.7dBi PCS: -8.3dBi

W-CDMA

Equipment Type	Transceiver
Frequency of Operation	[Up Link] Band V: 824-849MHz [Down Link] Band V: 869-894MHz
Type of Modulation	QPSK
Emission Designator	Band V: 4M17F9W
Antenna Type	PIFA
Antenna Gain	Band V: -6.7dBi

UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

SECTION 3 : Test standard information

3.1 Test Specification

Title : **Supplement C (Edition 01-01) to OET Bulletin 65 (Edition 97-01):**

Supplement C (Edition 01-01) - Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions
OET Bulletin 65 (Edition 97-01) - Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields

: **IEEE Std 1528-2003:**

IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques Supplement C

In additions;

☒ KDB450824D01(v01r01)	SAR Prob Cal and Ver Meas
☒ KDB450824D02(v01r01)	Dipole SAR Validation Verification
☒ KDB447498D01(v05)	Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies
☐ KDB447498D02(v02)	SAR Measurement Procedures for USB Dongle Transmitters
☒ KDB648474D04(v01)	SAR Evaluation Considerations for Wireless Handsets
☒ KDB941225D01(v02)	SAR Measurement Procedures for 3G Devices
☒ KDB941225D02(v02v01)	3GPP R6 HSPA and R7 HSPA+ SAR Guidance
☒ KDB941225D03(v01)	Recommended SAR Test Reduction Procedures for GSM/GPRS/EDGE
☐ KDB941225D04(v01)	Evaluating SAR for GSM/(E)GPRS Dual Transfer Mode
☐ KDB941225D05(v02)	SAR for LTE Devices
☒ KDB941225D06(v01)	SAR test procedures for devices incorporating SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities (Hot Spot SAR)
☐ KDB941225D07(v01)	SAR Evaluation Procedures for UMPC Mini-Tablet Devices
☐ KDB 616217D04(v01)	SAR Evaluation Considerations for Laptop, Notebook, Netbook and Tablet Computers
☒ KDB865664D01(v01)	SAR Measurement Requirements for 100MHz to 6 GHz
☒ KDB248227D01(v01r02)	SAR Measurement Procedures for 802.11a/b/g Transmitters

Reference

- [1]ANSI, ANSI/IEEE C95.1-1992: IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz, The Institute of Electrical and Electronics Engineers, Inc., New York, NY 10017, 1992.
[2]SPEAG uncertainty document (AN 15-7/AN19-17) for DASY 5 System from SPEAG (Shimid & Partner Engineering AG).

3.2 Procedure

Transmitter	WWAN	WLAN	Bluetooth
Test Procedure	FCC OET BULLETIN 65, SUPPLEMENT C	FCC OET BULLETIN 65, SUPPLEMENT C	Exemption*
	SAR	SAR	
Category	FCC47CFR 2.1093	FCC47CFR 2.1093	FCC47CFR 2.1093
Note: UL Japan, Inc. 's SAR Work Procedures 13-EM-W0429 and 13-EM-W0430			

* Since SAR exclusion threshold conditions are corresponded by KDB 447498 D01, and SAR test is not required.

UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

3.3 Exposure limit

(A) Limits for Occupational/Controlled Exposure (W/kg)

Spatial Average (averaged over the whole body)	Spatial Peak (averaged over any 1g of tissue)	Spatial Peak (hands/wrists/feet/ankles averaged over 10g)
0.4	8.0	20.0

(B) Limits for General population/Uncontrolled Exposure (W/kg)

Spatial Average (averaged over the whole body)	Spatial Peak (averaged over any 1g of tissue)	Spatial Peak (hands/wrists/feet/ankles averaged over 10g)
0.08	1.6	4.0

Occupational/Controlled Environments: are defined as locations where there is exposure that may be incurred by people who are aware of the potential for exposure, (i.e. as a result of employment or occupation).

General Population/Uncontrolled Environments: are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure.

**NOTE:GENERAL POPULATION/UNCONTROLLED EXPOSURE
SPATIAL PEAK(averaged over any 1g of tissue) LIMIT
1.6 W/kg**

3.4 Test Location

*Shielded room for SAR testings
UL Japan, Inc. Head Office EMC Lab. *NVLAP Lab. code: 200572-0
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8116 Facsimile : +81 596 24 8124

SECTION 4 : Test result

4.1 Stand-alone SAR result

Stand-alone SAR Procedure

No.	Capable Tx configurations		Head SAR	Body-worn SAR	Body SAR (HotSpot)	Note
1	WWAN	GSM/GPRS 850 MHz	Yes	Exemption*1	Yes	With VOIP
2		GSM/GPRS 1900 MHz	Yes	Exemption*1	Yes	With VOIP
3		WCDMA V 12.2kRMC	Yes	Exemption*1	Yes	With VOIP
5	WLAN	WLAN 2.4G	Yes	Exemption*1	Yes	With VOIP
7	Bluetooth	Bluetooth BDR/EDR	Exemption*2			-

Note

*1 It is not necessary to test Body-worn SAR if the test separation distance(10mm) for hotspot mode is more conservative than Body-worn test(15mm),according to KDB 941225 D06 Hotspot SAR procedure.

*2 Since SAR exclusion threshold conditions are corresponded by KDB 447498 D01, and SAR test is not required.

Reported SAR

Mode	1g Head SAR [W/kg]	1g Body-worn SAR [W/kg]	1g BodySAR [W/kg]
GSM850	0.692	Exemption	0.720
PCS1900	1.02	Exemption	0.387
WCDMA band V	0.372	Exemption	0.337
WLAN 11b/g/n(2.4G)	1.02	Exemption	0.199
Bluetooth	Exemption		

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Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

4.2 Simultaneous transmission SAR result

Simultaneous Procedure

This EUT has the unlicensed transmitter such as WLAN (802.11b/g/n) & Bluetooth devices besides licensed transmitter WWAN (GSM/WCDMA), and the following simultaneous transmission is possible.

No.	Capable Tx configurations		Head SAR	Body SAR (HotSpot)	Note
1	WWAN+WLA	GSM/GPRS + WLAN2.4G	Yes	Yes	-
2	N	WCDMA + WLAN2.4G	Yes	Yes	-
3	WWAN+Bluetooth		Yes (Exemption)		
4	WLAN+Bluetooth		No operating		

Simultaneous transmission SAR

<WWAN + WLAN>

Simultaneous transmitter evaluation based on the KDB447498D01 Refer to the clause 4.3.2..

Step1	Standalone SAR test exclusion considerations. Refer to Section 6.
Step2	Measured Stand-alone SAR for WWAN.
Step3	Measured Stand-alone SAR for WLAN.
Step4	Simultaneous transmission is possible (WWAN+ WLAN) Simultaneous transmission SAR test exclusion considerations
Step5	$1.6\text{W/kg} < \sum 1\text{g SAR (WWAN + WLAN)}$ Head: 2.03 W/kg Body: 0.829 W/kg Refer to Section 10.
Step6	SAR to peak location separation ratio ≤ 0.04 $(\sum 1\text{g SAR(WWAN + WLAN)})^{1.5} [\text{W/kg}] / \text{peak location separation} [\text{mm}]$ $= 2.03 [\text{W/kg}] / 70.60 [\text{mm}] = 0.04$ Refer to Section 10.
Step7	SAR test for simultaneous transmission is not measured..

<WWAN + Bluetooth>

Simultaneous transmitter evaluation based on the KDB447498D01 Refer to the clause 4.3.2..

Step1	Standalone SAR test exclusion considerations. Refer to Section 6.
Step2	Measured Stand-alone SAR for WWAN.
Step3	No measured Stand-alone SAR for Bluetooth.
Step4	Simultaneous transmission is possible (WWAN+ Bluetooth) Simultaneous transmission SAR test exclusion considerations.
Step5	Estimated SAR for Bluetooth is calculated.
Step6	$1.6\text{W/kg} > \sum 1\text{g SAR (WWAN + Bluetooth)}$ Head: 1.20 W/kg Body: 0.907 W/kg Refer to Section 10
Step6	No simultaneous transmission.

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Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

SECTION 5 : Description of the operating mode

5.1 Output power operating modes

Band	Duty cycle or Multi class(GSM)	Test Frequency	Mode
GSM850	Multi class 12	824.2MHz (128ch) 836.6MHz(190ch) 848.8MHz(251ch)	GSM GPRS (CS-1)
PCS1900	Multi class 12	1850.2MHz(512ch) 1880.0MHz(661ch) 1909.8MHz(810ch)	
WCDMA V	100%	826.4MHz (4132ch) 836.6MHz(4183ch) 846.6MHz(4233ch)	AMR 12.2k RMC HSDPA HSUPA
WWAN setting			
The communication link was set up with the Wireless Communications Test Set (Agilent M/N: E5515C). The EUT was command to operate at maximum transmit power. GSM850 :PCL 5 PCS1900 :PCL 0 W-CDMA :All up bits			

Mode	Duty cycle	Frequency Band	Test Frequency	Modulation
IEEE802.11b	100%	2412-2462MHz	2412MHz (1ch) 2437MHz(6ch) 2462MHz(11ch)	DSSS (DBPSK.DQPSK.CCK)
IEEE802.11g	100%	2412-2462MHz	2412MHz (1ch) 2437MHz(6ch) 2462MHz(11ch)	OFDM (BPSK.QPSK.16QAM,64QAM)
IEEE802.11n20 (2.4G)	100%	2412-2462MHz	2412MHz (1ch) 2437MHz(6ch) 2462MHz(11ch)	
Bluetooth	78.5%(DH5) 78.3%(3DH5)	2402-2480MHz	2402MHz(1ch) 2441MHz(39ch) 2480MHz(79ch)	FHSS (GFSK, $\pi/4$ DQPSK,8DPSK)

WLAN and Bluetooth Setting

Power of the EUT was set by the software as follows:

WLAN

H/W version: REV0.1

S/W version: S5303B.001

[Power Setting]

11b: 16dBm

11g: 13dBm

11n-20: 13dBm

Bluetooth

H/W version: REV0.1

S/W version: S5303B.001

[Power settings]

Maximum power of the EUT was transmitted on Bluetooth testing mode.

*The above setting of the software is the worst case. Any conditions under the normal use do not exceed the condition of setting. In addition, end users cannot change the settings of the output power of the product.

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Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

5.2 Output power measurement results

Output power measurement for GSM

[GSM]

*Connection Type > AUTO
*Power control level > 5(GSM850),0(PCS1900)

[GPRS]

*Connection Type > Type B
*Power control level > 5(GSM850),0(PCS1900)
*Coding Scheme > CS-1

1) GSM850

GSM850 SAR Power												
Mode		Crest Factor (typical)	Ch	Frequency [MHz]	Time-based Average				Average frame power			
					Reading [dBm]	Atten. [dB]	Cable Loss [dB]	Result [dBm]	Reading [dBm]	Atten. [dB]	Cable Loss [dB]	Result [dBm]
GSM	1slot	8.3	128	824.2	9.37	9.94	3.54	22.85	18.48	9.94	3.85	32.27
			190	836.6	9.45	9.94	3.54	22.93	18.77	9.94	3.85	32.56
			251	848.8	9.51	9.94	3.54	22.99	18.58	9.94	3.85	32.37
GPRS (CS1)	1slot	8.3	128	824.2	9.45	9.94	3.54	22.93	18.78	9.94	3.85	32.57
			190	836.6	9.47	9.94	3.54	22.95	18.95	9.94	3.85	32.74
			251	848.8	9.44	9.94	3.54	22.92	18.82	9.94	3.85	32.61
	2slots	4.2	128	824.2	10.01	9.94	3.54	23.49	16.48	9.94	3.85	30.27
			190	836.6	10.07	9.94	3.54	23.55	16.67	9.94	3.85	30.46
			251	848.8	10.05	9.94	3.54	23.53	16.54	9.94	3.85	30.33
	3slots	2.8	128	824.2	9.92	9.94	3.54	23.40	14.76	9.94	3.85	28.55
			190	836.6	10.09	9.94	3.54	23.57	14.92	9.94	3.85	28.71
			251	848.8	10.09	9.94	3.54	23.57	14.82	9.94	3.85	28.61
	4slots	2.1	128	824.2	10.04	9.94	3.54	23.52	13.98	9.94	3.85	27.77
			190	836.6	10.40	9.94	3.54	23.88	14.12	9.94	3.85	27.91
			251	848.8	10.38	9.94	3.54	23.86	14.05	9.94	3.85	27.84

Time based AVG Results = P/M Reading + Atten.Loss + Cable Loss

Slotted AVG Results = Agilent Reading + Cable Loss

:Maximum time based AVG power mode

:SAR test channel

UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

2) PCS1900

PCS1900 SAR Power												
Mode		Crest Factor (typical)	Ch	Frequency [MHz]	Time-based Average				Average frame power			
					Reading [dBm]	Atten. [dB]	Cable Loss [dB]	Result [dBm]	Reading [dBm]	Atten. [dB]	Cable Loss [dB]	Result [dBm]
GSM	1slot	8.3	512	1850.2	6.23	9.96	3.60	19.79	15.73	9.96	3.97	29.66
			661	1880.0	6.15	9.96	3.60	19.71	15.62	9.96	3.97	29.55
			810	1909.8	6.20	9.97	3.61	19.78	15.68	9.97	3.97	29.62
GPRS (CS1)	1slot	8.3	512	1850.2	6.17	9.96	3.60	19.73	15.73	9.96	3.97	29.66
			661	1880.0	5.95	9.96	3.60	19.51	15.63	9.96	3.97	29.56
			810	1909.8	5.79	9.97	3.61	19.37	15.64	9.97	3.97	29.58
	2slots	4.2	512	1850.2	7.05	9.96	3.60	20.61	13.80	9.96	3.97	27.73
			661	1880.0	6.82	9.96	3.60	20.38	13.68	9.96	3.97	27.61
			810	1909.8	7.01	9.97	3.61	20.59	13.76	9.97	3.97	27.70
	3slots	2.8	512	1850.2	6.84	9.96	3.60	20.40	12.28	9.96	3.97	26.21
			661	1880.0	6.70	9.96	3.60	20.26	12.21	9.96	3.97	26.14
			810	1909.8	6.93	9.97	3.61	20.51	12.27	9.97	3.97	26.21
	4slots	2.1	512	1850.2	7.11	9.96	3.60	20.67	11.64	9.96	3.97	25.57
			661	1880.0	7.01	9.96	3.60	20.57	11.57	9.96	3.97	25.50
			810	1909.8	7.18	9.97	3.61	20.76	11.60	9.97	3.97	25.54

Time based AVG Results = P/M Reading + Atten.Loss + Cable Loss

Slotted AVG Results = Agilent Reading + Cable Loss

Maximum time based AVG power mode

SAR test channel

UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

Output power measurement for W-CDMA

Maximum output power for W-CDMA and HSPA was verified on the high, middle and low channels according to the procedures described in section 5.2 of 3GPP TS 34.121 and "KDB 941225 document".

The WCDMA and HSPA modes of EUT were verified each channel and "sub-tests" according to Release-6 procedures in section 5.2 of 3GPP TS 34.121.

[Rel.99]

The communication test set was using a 12.2k RMC (reference measurement channel) with TPC (transmit power control) set to all "1's" configured in Test Loop Mode 1.

[HSDPA]

The communication test set was using an FRC (Fixed reference channel) with H-set 1 and 12.2kbps RMC with TPC (transmit power control) set to all "1's". Output power was measured according requirements for HS-DPCCH Sub-test 1-4.

Table C.10.1.4: β values for transmitter characteristics tests with HS-DPCCH

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{HS} (Note 1, Note 2)	CM (dB) (Note 3)	MPR (dB) (Note 3)
1	2/15	15/15	64	2/15	4/15	0.0	0.0
2	12/15	15/15	64	12/15	24/15	1.0	0.0
	(Note 4)	(Note 4)		(Note 4)			
3	15/15	8/15	64	15/8	30/15	1.5	0.5
4	15/15	4/15	64	15/4	30/15	1.5	0.5

Note 1: Δ_{ACK} , Δ_{NACK} and $\Delta_{CQI} = 30/15$ with $\beta_{hs} = 30/15 * \beta_c$.

Note 2: For the HS-DPCCH power mask requirement test in clause 5.2C, 5.7A, and the Error Vector Magnitude (EVM) with HS-DPCCH test in clause 5.13.1A, and HSDPA EVM with phase discontinuity in clause 5.13.1AA, Δ_{ACK} and $\Delta_{NACK} = 30/15$ with $\beta_{hs} = 30/15 * \beta_c$, and $\Delta_{CQI} = 24/15$ with $\beta_{hs} = 24/15 * \beta_c$.

Note 3: CM = 1 for $\beta_c/\beta_d = 12/15$, $\beta_{hs}/\beta_c = 24/15$. For all other combinations of DPDCCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.

Note 4: For subtest 2 the β_c/β_d ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 11/15$ and $\beta_d = 15/15$.

Test Equipment Setting Summary Table

The following table is the key parameters that was configured in test equipment.

Subtest	Mode	Loopback Mode	Rel99 RMC	HSDPA FRC	HSUPA Test	Common Setting		β_c/β_d	MPR	Power Class 3 limit
						β_c	β_d			
	Rel99	Test Mode 1	12.2kbps RMC	-	-			8/15		24(+1.7/-3.7dB)
1	Rel6 HSDPA	Test Mode 1	12.2kbps RMC	H-Set 1 (HPSK)	-	2/15	15/15	2/15	0	24(+1.7/-3.7dB)
2	Rel6 HSDPA	Test Mode 1	12.2kbps RMC	H-Set 1 (HPSK)	-	12/15	15/15	12/15	0	24(+1.7/-3.7dB)
3	Rel6 HSDPA	Test Mode 1	12.2kbps RMC	H-Set 1 (HPSK)	-	15/15	8/15	15/8	0.5	23.5(+2.2/-3.7dB)
4	Rel6 HSDPA	Test Mode 1	12.2kbps RMC	H-Set 1 (HPSK)	-	15/15	4/15	15/4	0.5	23.5(+2.2/-3.7dB)

Subtest	HSDPA Specific Settings						
	Δ_{ACK}	Δ_{NACK}	Δ_{CQI}	Ack-Nack repetition factor	CQI Feedback	CQI Repetition Factor	Ahs= β_{hs}/β_c
Rel 6 HSDPA							
1	8	8	8	3	4ms	2	30/15
2	8	8	8	3	4ms	2	30/15
3	8	8	8	3	4ms	2	30/15
4	8	8	8	3	4ms	2	30/15

UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

3) WCDMA V

WCDMA V band					
Mode	Ch	Frequency [MHz]	Reading AVG [dBm]	Cable loss [dB]	Result [dBm]
RMC 12.2kbps	4132	826.4	22.42	0.17	22.59
	4183	836.6	22.18	0.17	22.35
	4233	846.6	22.40	0.17	22.57
AMR	4132	826.4	22.39	0.17	22.56
	4183	836.6	22.18	0.17	22.35
	4233	846.6	22.38	0.17	22.55
HSDPA Subtest1	4132	826.4	22.11	0.17	22.28
	4183	836.6	21.88	0.17	22.05
	4233	846.6	22.04	0.17	22.21
HSDPA Subtest2	4132	826.4	22.03	0.17	22.20
	4183	836.6	21.80	0.17	21.97
	4233	846.6	21.94	0.17	22.11
HSDPA Subtest3	4132	826.4	21.96	0.17	22.13
	4183	836.6	21.75	0.17	21.92
	4233	846.6	21.87	0.17	22.04
HSDPA Subtest4	4132	826.4	21.94	0.17	22.11
	4183	836.6	21.73	0.17	21.90
	4233	846.6	21.85	0.17	22.02
HSUPA Subtest1	4132	826.4	21.26	0.17	21.43
	4183	836.6	21.26	0.17	21.43
	4233	846.6	21.00	0.17	21.17
HSUPA Subtest2	4132	826.4	19.43	0.17	19.60
	4183	836.6	19.43	0.17	19.60
	4233	846.6	19.44	0.17	19.61
HSUPA Subtest3	4132	826.4	20.45	0.17	20.62
	4183	836.6	20.56	0.17	20.73
	4233	846.6	20.50	0.17	20.67
HSUPA Subtest4	4132	826.4	19.64	0.17	19.81
	4183	836.6	19.53	0.17	19.70
	4233	846.6	19.17	0.17	19.34
HSUPA Subtest5	4132	826.4	20.71	0.17	20.88
	4183	836.6	20.61	0.17	20.78
	4233	846.6	20.65	0.17	20.82

Results = Reading + Loss

: Maximum power mode
: SAR test channel

Note: HSUPA

The enhanced power reduction may result in around 1dB of variance from the MPR target values depending on HSPA channel configuration (e.g. 34.121 subtest) and characteristics of hardware RF design.

UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

Output power measurement for WLAN

4) WLAN (11b/g/n(2.4G))

[IEEE802.11b] Rate Check

Rate [Mbps]	Freq. [MHz]	P/M Reading [dBm]		Cable Loss [dB]	Atten. [dB]	Result			
		PK	AVG			[dBm]		[mW]	
1.0	2437	7.37	4.45	1.37	9.95	18.69	15.77	73.96	37.76
2.0	2437	7.28	4.37	1.37	9.95	18.60	15.69	72.44	37.07
5.5	2437	7.27	4.21	1.37	9.95	18.59	15.53	72.28	35.73
11.0	2437	7.34	4.03	1.37	9.95	18.66	15.35	73.45	34.28

: Worst data rate

IEEE802.11b 1Mbps

Ch	Frequency [MHz]	P/M Reading [dBm]		Cable Loss [dB]	Atten. [dB]	Result			
		PK	AVG			[dBm]		[mW]	
1	2412	7.29	4.39	1.37	9.95	18.61	15.71	72.61	37.24
6	2437	7.37	4.45	1.37	9.95	18.69	15.77	73.96	37.76
11	2462	7.22	4.46	1.38	9.95	18.55	15.79	71.61	37.93

: SAR test channel

: Maximum power mode

[IEEE802.11g] Rate Check

Rate [Mbps]	Frequency [MHz]	P/M Reading [dBm]		Cable Loss [dB]	Atten. [dB]	Result			
		PK	AVG			[dBm]		[mW]	
6.0	2437	11.99	0.92	1.37	9.95	23.31	12.24	214.29	16.75
9.0	2437	11.97	0.88	1.37	9.95	23.29	12.20	213.30	16.60
12.0	2437	11.77	0.72	1.37	9.95	23.09	12.04	203.70	16.00
18.0	2437	11.71	0.64	1.37	9.95	23.03	11.96	200.91	15.70
24.0	2437	11.87	0.29	1.37	9.95	23.19	11.61	208.45	14.49
36.0	2437	11.77	-0.05	1.37	9.95	23.09	11.27	203.70	13.40
48.0	2437	11.75	-0.44	1.37	9.95	23.07	10.88	202.77	12.25
54.0	2437	11.77	-0.46	1.37	9.95	23.09	10.86	203.70	12.19

: Worst data rate

IEEE802.11g 6Mbps

Ch	Frequency [MHz]	P/M Reading [dBm]		Cable Loss [dB]	Atten. [dB]	Result			
		PK	AVG			[dBm]		[mW]	
1	2412	12.12	1.06	1.37	9.95	23.44	12.38	220.80	17.30
6	2437	11.99	0.92	1.37	9.95	23.31	12.24	214.29	16.75
11	2462	12.00	1.11	1.38	9.95	23.33	12.44	215.28	17.54

Sample Calculation:

Result = Reading + Cable Loss + Attenuator

UL Japan, Inc.**Head Office EMC Lab.**

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

[IEEE802.11n-20] Rate Check

Rate	Frequency [MHz]	P/M Reading [dBm]		Cable Loss [dB]	Atten. [dB]	Result			
		PK	AVG			[dBm]		[mW]	
MCS0	2437	11.98	0.77	1.37	9.95	23.30	12.09	213.80	16.18
MCS1	2437	11.67	0.43	1.37	9.95	22.99	11.75	199.07	14.96
MCS2	2437	11.74	0.32	1.37	9.95	23.06	11.64	202.30	14.59
MCS3	2437	11.71	0.12	1.37	9.95	23.03	11.44	200.91	13.93
MCS4	2437	11.60	-0.10	1.37	9.95	22.92	11.22	195.88	13.24
MCS5	2437	11.92	-0.59	1.37	9.95	23.24	10.73	210.86	11.83
MCS6	2437	11.77	-0.49	1.37	9.95	23.09	10.83	203.70	12.11
MCS7	2437	11.65	-0.93	1.37	9.95	22.97	10.39	198.15	10.94

:Worst data rate

IEEE802.11n-20 MCS0

Ch	Frequency [MHz]	P/M Reading [dBm]		Cable Loss [dB]	Atten. [dB]	Result			
		PK	AVG			[dBm]		[mW]	
1	2412	11.98	0.86	1.37	9.95	23.30	12.18	213.80	16.52
6	2437	11.98	0.77	1.37	9.95	23.30	12.09	213.80	16.18
11	2462	11.75	0.75	1.38	9.95	23.08	12.08	203.24	16.14

Sample Calculation:

Result = Reading + Cable Loss + Attenuator

5) Bluetooth

Mode	Frequency [MHz]	P/M Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result	
		AVG			[dBm] AVG	[mW] AVG
DH5	2402.0	-5.02	0.83	9.95	5.76	3.77
	2441.0	-4.80	0.83	9.95	5.98	3.96
	2480.0	-5.64	0.84	9.95	5.15	3.27
2DH5	2402.0	-8.40	0.83	9.95	2.38	1.73
	2441.0	-8.04	0.83	9.95	2.74	1.88
	2480.0	-8.79	0.84	9.95	2.00	1.58
3DH5	2402.0	-8.40	0.83	9.95	2.38	1.73
	2441.0	-8.05	0.83	9.95	2.73	1.87
	2480.0	-8.78	0.84	9.95	2.01	1.59

Sample Calculation: Result = Reading + Cable Loss + Attenuator

: Maximum power mode

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4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

5.3 SAR testing operating modes

The operating mode for SAR testing was decided by the output power

1) SAR measurement for GSM, W-CDMA

Position	Band	Test Frequency	Mode	Crest factor	Note
	GSM850	836.6MHz(190ch) *1	GSM GPRS (CS-1) 4 slots *2	8.3 2.1	*4 1)
	PCS1900	1850.2MHz(512ch) 1880.0MHz(661ch) 1909.8MHz(810ch)	GSM GPRS (CS-1) 4 slots *2	8.3 2.1	*4 2)
	WCDMA V	836.6MHz (4183ch) *1	12.2k RMC *3	1	*4 1)
	GSM850	836.6MHz(190ch) *1	GSM GPRS (CS-1) 4 slots *2	8.3 2.1	*4 1)
	PCS1900	1880.0MHz(661ch) *1	GSM GPRS (CS-1) 4 slots *2	8.3 2.1	*4 1)
	WCDMA V	836.6MHz (4183ch) *1	12.2k RMC *3	1	*4 1)
WWAN					
The communication link was set up with the Wireless Communications Test Set (Agilent M/N: E5515C). The EUT was command to operate at maximum transmit power. GSM850 :PCL 5 PCS1900 :PCL 0 W-CDMA :All up bits					

*1 The other channel was not required since maximum average output power channel SAR value is less than 0.8W/kg.

*2 The GPRS 4up mode was maximum time-based average power. The other slots SAR is not required for other mode because the maximum average output power for other mode is less than 1/4dB higher than that measured GPRS 4up mode.

*3 The 12.2k RMC mode was maximum average power. The AMR/HSDPA/HSUPA SAR is not required for other mode because the maximum average output power for other mode is less than 1/4dB higher than that measured 12.2k RMC mode.

*4

1) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg.

2) When the original highest measured SAR is ≥ 0.80 W/kg, repeat that measurement once.

UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

2) SAR measurement for WLAN

Decision of SAR test channel

The operating mode for SAR testing was decided by the output power

The average output power for 802.11a was measured on all channels in each frequency band.

Mode	GHz	Channel	"Default Test Channel"			
			FCC 15.247		UNII	
			802.11b	802.11g		
802.11 b/g/n20	2.412	1	√	Δ		
	2.437	6	√	Δ		
	2.462	11	√	Δ		
802.11a/n20	5.18	36			√	
	5.20	40				*
	5.22	44				*
	5.24	48			√	
	5.26	52			√	
	5.28	56				*
	5.30	60				*
	5.32	64			√	
	5.50	100				*
	5.52	104			√	
	5.54	108				*
	5.56	112				*
	5.58	116			√	
	5.60	120				*
	5.62	124			√	
	5.64	128				*
	5.66	132				*
	5.68	136			√	
	5.70	140				*
	UNII or FCC 15.247	5.745	149	√		√
		5.765	153		*	
		5.785	157	√		*
		5.805	161		*	√
	FCC 15.247	5.825	165	√		
802.11n40	UNII	5.19	38			√
		5.23	46			√
		5.27	54			√
		5.31	62			√
		5.51	102			√
		5.55	110			√
		5.59	118			
		5.63	126			√
		5.67	134			√
	UNII or FCC 15.247	5.755	151	√		√
	FCC 15.247	5.795	159	√		√

√ = "default test channels"

* = Possible 802.11a channels with maximum average output > the "default test channels"

Δ = Possible 802.11g channels with maximum average output ¼ dB ≥ the "default test channels"

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Telephone: +81 596 24 8116

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Position	Mode	Test Frequency	Modulation	Crest factor	Note
Head	IEEE802.11b	2412MHz(1ch) 2437MHz(6ch) 2462MHz(11ch)	DBPSK(1Mbps) *2	1	*4 2)
	Bluetooth	Exemption *3			
Body	IEEE802.11b	2437MHz(6ch) *1	DBPSK(1Mbps) *2	1	*4 1)
	Bluetooth	Exemption *3			

WLAN setting

Power of the EUT was set by the software as follows:

WLAN

H/W version: REV0.1

S/W version: S5303B.001

[Power Setting]

11b: 16dBm

11g: 13dBm

11n-20: 13dBm

*The above setting of the software is the worst case. Any conditions under the normal use do not exceed the condition of setting. In addition, end users cannot change the settings of the output power of the product.

*1 The other channel was not required since maximum average output power channel SAR value is less than 0.8W/kg.

*2 The 11b mode was maximum average power. The 11g/n SAR is not required for other mode because the maximum average output power for other mode is less than 1/4dB higher than that measured 11b mode.

*3 Since SAR exclusion threshold conditions are corresponded by KDB 447498 D01, and SAR test is not required.

*4

1) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg.

2) When the original highest measured SAR is ≥ 0.80 W/kg, repeat that measurement once.

UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

5.4 Confirmation before SAR testing

Correlation of Output Power between EMC and SAR tests

It was checked that the antenna port power was correlated within 0~+5% (FCC requirements)
SAR power is equal to DATA of EMC test based on the following reason.

- EMC and SAR tests are performed with the same test sample such as serial number under the same condition.
- EMC and SAR tests are performed at the same laboratory.

5.5 Confirmation after SAR testing

It was checked that the power drift [W] is within +/-5%. The verification of power drift during the SAR test is that DASY5 system calculates the power drift by measuring the E-field at the same location at beginning and the end of the scan measurement for each test position.

DASY5 system calculation Power drift value[dB] = $20\log(E_a)/(E_b)$

Before SAR testing : E_b [V/m]

After SAR testing : E_a [V/m]

Limit of power drift[W] = +/-5%

$X[\text{dB}] = 10\log[P] = 10\log(1.05/1) = 10\log(1.05) - 10\log(1) = 0.212\text{dB}$

from E-field relations with power.

$p = E^2/\eta = E^2/$

Therefore, The correlation of power and the E-field

$X[\text{dB}] = 10\log(P) = 10\log(E)^2 = 20\log(E)$

Therefore,

The calculated power drift of DASY5 System must be the less than +/-0.212dB.

SECTION 6 SAR test exclusion considerations

6.1 Standalone SAR test exclusion considerations

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

$$[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$$

for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where

f(GHz) is the RF channel transmit frequency in GHz

Power and distance are rounded to the nearest mW and mm before calculation¹⁷

The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

Band	Standalone SAR tested	Mode	Upper frequency of band *1	Upper power of spec	Min distance *2	Calculation of exclusion *3
GSM850	☒	GPRS 4slots	848.8 [MHz] (251 ch)	24.07 [dBm] 255.27 [mW]	5 [mm]	47.0
PCS1900	☒	GPRS 4slots	1909.8 [MHz] (810ch)	20.92 [dBm] 123.59 [mW]	5 [mm]	34.2
WCDMA V	☒	12.2k RMC	846.6 [MHz] (4233ch)	23.00 [dBm] 199.53 [mW]	5 [mm]	36.7
WLAN(2.4 GHz band)	☒	11b DBPSK(1Mbps)	2462 [MHz] (11ch)	16.5 [dBm] 44.67 [mW]	5 [mm]	14.0
Bluetooth	☐	BDR(DH5)	2480 [MHz] (79ch)	6.5 [dBm] 4.47 [mW]	5 [mm]	1.4

*1 The upper frequency of the frequency band was used in order to calculate standalone SAR test exclusion considerations.

*2 Refer to Appendix 4. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

*3 $[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$

SECTION 7 : Description of the Head/Body setup

7.1 Test position for Head setup

i) Procedure for SAR testing

The EUT was tested in accordance with FCC OET Bulletin 65 Supplement C: 2001-01 and IEEE 1528: 2003 for both the “Cheek/Touch” and “Ear/Tilt” positions at the left and right sides of the SAM phantom head region. The FCC KDB 648474 D04 was also incorporated.

ii) Test mode

GSM850/PCS1900	Voice mode (GSM)/ Voip mode (GPRS)
WCDMA V	12.2k RMC
WLAN	VOIP mode (11b)

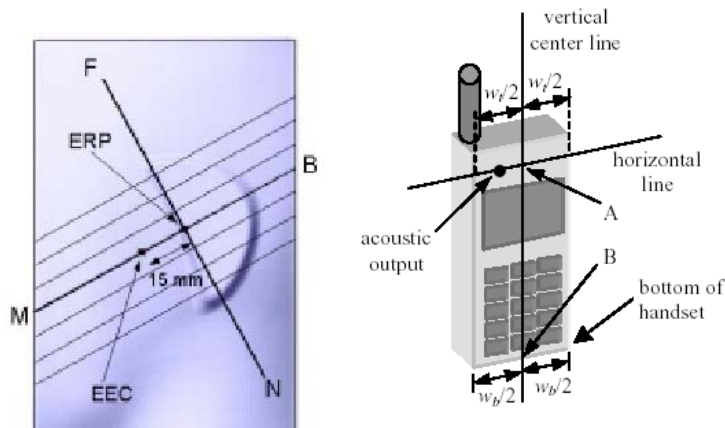
iii) Test position

No.	Phantom	Position	WWAN		WLAN	
			Tested	Antenna	Tested	Antenna
1	Left	Cheek	☑	Fixed	☑	Fixed
2	Left	Tilt	☑	Fixed	☑	Fixed
3	Right	Cheek	☑	Fixed	☑	Fixed
4	Right	Tilt	☑	Fixed	☑	Fixed

Initial ear position

A handset should be initially positioned with the earpiece region pressed against the ear spacer of a head phantom.

The device should be positioned parallel to the “N-F” line defined along the base of the ear spacer that contains the “ear reference point”. The “test device reference point” is aligned to the “ear reference point” on the head phantom and the “vertical centerline” is aligned to the “phantom reference plane”.

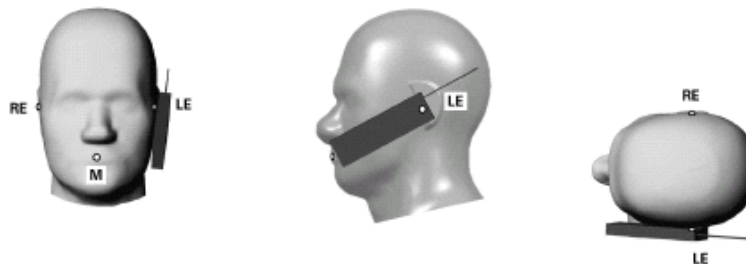


Cheek position

The device is brought toward the mouth of the head phantom by pivoting against the “ear reference point” or along the “N-F” line.

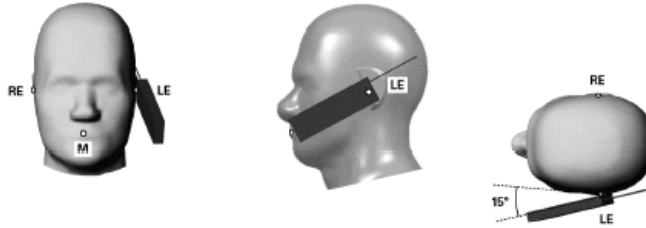
This test position is established:

- When any point on the display, keypad or mouthpiece portions of the handset is in contact with the phantom.
- (or) When any portion of a foldout, sliding or similar keypad cover opened to its intended self-adjusting normal use position is in contact with the cheek or mouth of the phantom.



Tilt position

If the earpiece of the handset is not in full contact with the phantom's ear spacer and the peak SAR location for the "Cheek/Touch" position is located at the ear spacer region or corresponds to the earpiece region of the handset, the device should be returned to the "initial ear position" by rotating it away from the mouth until the earpiece is in full contact with the ear spacer. Otherwise the handset should be moved away from the cheek perpendicular to the line passes through both "ear reference points" for approximate 2-3 cm. While it is in this position, the handset is tilted away from the mouth with respect to the "test device reference point" by 15°. After the tilt, it is then moved back toward the head perpendicular to the line passes through both "ear reference points" until the device touches the phantom or the ear spacer. If the antenna touches the head first, the positioning process should be repeated with a tilt angle less than 15° so that the device and its antenna would touch the phantom simultaneously.



<Antenna position>

The antennas use for WWAN and WLAN are both separate in a single fixed position. The antennas are integral part of the device.

7.2 Description of the Body setup

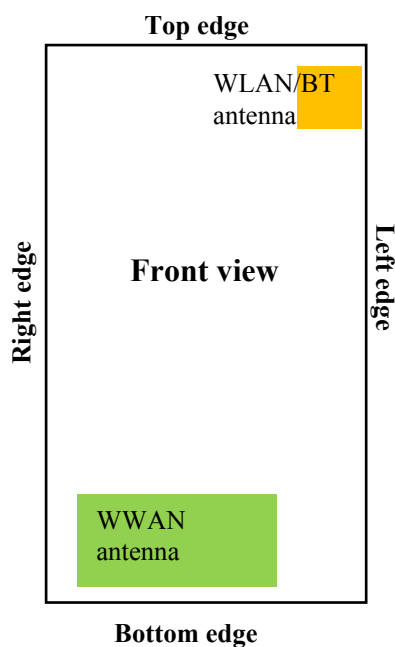
i) Procedure for SAR testing

-The tested procedure was performed according to the KDB941225 D06 (SAR Evaluation Procedures for portable Devices with Wireless Router Capabilities)

ii) Test mode

GSM850/PCS1900	Data transmission mode (GPRS)/ Voice mode (GSM)
WCDMA V/II	Data transmission mode (12.2kRMC)
WLAN	Data transmission mode (11b)

iii) Test position



<Test position>

Test position is required to the edge within 2.5cm from antenna, according to the KDB 941225 D06.
Device dimensions (HxWxD):105 x 57 x 12

<Antenna position>

The antennas use for WWAN and WLAN are both separate in a single fixed position. The antennas are integral part of the device

No.	Position	Test distance	WWAN			WLAN		
			Tested	Antenna	Separation from user	Tested	Antenna	Separation from user
1	Front	10mm	☒	Fixed	<25mm	☒	Fixed	< 25mm
2	Rear	10mm	☒	Fixed	<25mm	☒	Fixed	< 25mm
3	Left edge	10mm	☒	Fixed	<25mm	☒	Fixed	< 25mm
4	Right edge	10mm	☒	Fixed	<25mm	☐	Fixed	>25mm
5	Top edge	10mm	☐	Fixed	>25mm	☒	Fixed	< 25mm
6	Bottom edge	10mm	☒	Fixed	<25mm	☐	Fixed	>25mm

UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

SECTION 8 : Test surrounding

8.1 Measurement uncertainty

The uncertainty budget has been determined for the DASY5 measurement system according to the SPEAG documents[2] and is given in the following Table.

<0.3 – 3GHz range>

Error Description	Uncertai value ±	Probability distribution	divisor	(ci) lg	Standard (lg)	vi or veff
Measurement System						
Probe calibration	± 6.00	Normal	1	1	± 6.00	∞
Axial isotropy of the probe	± 4.7	Rectangular	√3	0.7	± 1.9	∞
Spherical isotropy of the probe	± 9.6	Rectangular	√3	0.7	± 3.9	∞
Boundary effects	± 1.0	Rectangular	√3	1	± 0.6	∞
Probe linearity	± 4.7	Rectangular	√3	1	± 2.7	∞
Detection limit	± 1.0	Rectangular	√3	1	± 0.6	∞
Modulation response	± 2.4	Rectangular	√3	1	± 1.4	∞
Readout electronics	± 0.3	Normal	1	1	± 0.3	∞
Response time	± 0.8	Rectangular	√3	1	± 0.5	∞
Integration time	± 2.6	Rectangular	√3	1	± 1.5	∞
RF ambient Noise	± 3.0	Rectangular	√3	1	± 1.7	∞
RF ambient Reflections	± 3.0	Rectangular	√3	1	± 1.7	∞
Probe Positioner	± 0.4	Rectangular	√3	1	± 0.2	∞
Probe positioning	± 2.9	Rectangular	√3	1	± 1.7	∞
Max.SAR Eval.	± 1.0	Rectangular	√3	1	± 0.6	∞
Test Sample Related						
Device positioning	± 2.9	Normal	1	1	± 2.9	44
Device holder uncertainty	± 3.6	Normal	1	1	± 3.6	9
Power drift	± 5.0	Rectangular	√3	1	± 2.9	∞
Power Scaling	+ 0.0	Rectangular	√3	1	± 0.0	∞
Phantom and Setup						
Phantom uncertainty	± 4.0	Rectangular	√3	1	± 2.3	∞
Liquid conductivity (target)	± 5.0	Rectangular	√3	0.64	± 1.8	∞
Liquid conductivity (meas.)	+ 4.9	Rectangular	1	0.64	+ 3.1	∞
Liquid permittivity (target)	± 5.0	Rectangular	√3	0.6	± 1.7	∞
Liquid permittivity (meas.)	- 4.7	Rectangular	1	0.6	- 2.8	∞
Liquid conductivity - temp.unc (below 2deg.C.)	± 1.7	Rectangular	√3	0.78	± 0.8	∞
Liquid permittivity - temp.unc (below 2deg.C.)	± 0.3	Rectangular	√3	0.23	± 0.0	∞
Combined Standard Uncertainty						
					± 11.593	
Expanded Uncertainty (k=2)						
					± 23.2	

SECTION 9 : Measurement results

9.1 GSM 850MHz Head SAR

(1) Method of measurement

- Step1. The searching for the worst position
The test was performed in the middle channel.
Step2. The changing to the DATA transmitter for VOIP mode (GPRS)
The test was performed at the worst position of Step1.

Note:

- 1) The GPRS 4up mode was maximum time-based average power. The other slots SAR is not required for other mode because the maximum average output power for other mode is less than 1/4dB higher than that measured GPRS 4up mode.
2) The other channel was not required since middle channel SAR value is less than 0.8W/kg.
3) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg.

(2) Simulated Tissue Liquid Parameter confirmation

The dielectric parameters were checked prior to assessment using the HP85070D dielectric probe kit.
The dielectric parameters measurement is reported in each correspondent section.

DIELECTRIC PARAMETERS MEASUREMENT RESULTS										
Date	Ambient Temp. [deg.c]	Relative Humidity [%]	Liquid type	Liquid Temp. [deg.c]	Measured Frequency [MHz]	Parameters	Target Value*1	Measured	Deviation [%]	Limit [%]
21-Jan	24.0	41	HSL900	23.5	835	ϵ_r	41.5	42.0	1.2	+/-5
						σ [mho/m]	0.90	0.88	-2.7	+/-5

ϵ_r : Relative Permittivity / σ : Conductivity

*1 The Target value is a parameter defined in FCC OET65.

(3) Result of Head SAR

25) Result of Head SAR

HEAD SAR MEASUREMENT RESULTS												
Frequency		Modulation	Max power(Meas)		Upper power of spec		Phantom Section	EUT Set-up Conditions			Measured SAR(1g) [W/kg]	Scaled SAR(1g) * [W/kg]
Channel	[MHz]		[dBm]	[mW]	[dBm]	[mW]		Antenna	Position	Separation [mm]	Maximum of multi-peak	Maximum of multi-peak
Step.1 Position searching												
190	836.6	GSM	22.93	196.34	23.37	217.27	Left	Fixed	Cheek	0	0.617	0.629
190	836.6	GSM	22.93	196.34	23.37	217.27	Left	Fixed	Tilt	0	0.271	0.276
190	836.6	GSM	22.93	196.34	23.37	217.27	Right	Fixed	Cheek	0	0.522	0.532
190	836.6	GSM	22.93	196.34	23.37	217.27	Right	Fixed	Tilt	0	0.254	0.259
Step.2 VOIP mode (GPRS)												
190	836.6	GPRS 4slots	23.88	244.34	24.07	255.27	Left	Fixed	Cheek	0	0.687	0.692

*Scaled SAR= Upper power of spec [mW] / Measured Max power [mW] * Measured SAR [W/kg]

UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

9.2 GSM 850MHz Body SAR

(1) Method of measurement

<Body (Hotspot mode)>

- Step1. The searching for the worst position
The test was performed in the middle channel.
- Step2. The changing to the voice mode (GSM)
The test was performed at the worst condition of Step1.

Note:

- 1) The GPRS 4up mode was maximum time-based average power. The other slots SAR is not required for other mode because the maximum average output power for other mode is less than 1/4dB higher than that measured GPRS 4up mode.
- 2) The other channel was not required since middle channel SAR value is less than 0.8W/kg.
- 3) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg.

(2) Simulated Tissue Liquid Parameter confirmation

The dielectric parameters were checked prior to assessment using the HP85070D dielectric probe kit.

The dielectric parameters measurement is reported in each correspondent section.

DIELECTRIC PARAMETERS MEASUREMENT RESULTS										
Date	Ambient Temp. [deg.c]	Relative Humidity [%]	Liquid type	Liquid Temp. [deg.c]	Measured Frequency [MHz]	Parameters	Target Value*1	Measured	Deviation [%]	Limit [%]
22-Jan	24.0	45	MSL 900	23.5	835	ϵ_r	55.2	55.7	1.0	+/-5
						σ [mho/m]	0.97	1.02	4.8	+/-5

ϵ_r : Relative Permittivity / σ : Conductivity

*1 The Target value is a parameter defined in FCC OET65.

(3) Result of Body SAR

BODY SAR MEASUREMENT RESULTS													
Frequency		Modulation	Max power(Meas)		Upper power of spec		Phantom Section	EUT Set-up Conditions			Measured SAR(1g) [W/kg]	Scaled SAR(1g) * [W/kg]	
Channel	[MHz]		[dBm]	[mW]	[dBm]	[mW]		Antenna	Position	Separation [mm]	Maximum of multi-peak	Maximum of multi-peak	
Step.1 Position searching													
190	836.6	GPRS 4slots	23.88	244.34	24.07	255.27	Flat	Fixed	Front	10	0.568	0.593	
190	836.6	GPRS 4slots	23.88	244.34	24.07	255.27	Flat	Fixed	Rear	10	0.689	0.720	
190	836.6	GPRS 4slots	23.88	244.34	24.07	255.27	Flat	Fixed	Left edge	10	0.202	0.211	
190	836.6	GPRS 4slots	23.88	244.34	24.07	255.27	Flat	Fixed	Right edge	10	0.296	0.309	
190	836.6	GPRS 4slots	23.88	244.34	24.07	255.27	Flat	Fixed	Bottom edge	10	0.076	0.079	
Step.2 Voice mode (GSM)													
190	836.6	GSM	22.93	196.34	23.37	217.27	Flat	Fixed	Rear	10	0.606	0.671	

*Scaled SAR= Upper power of spec [mW] / Measured Max power [mW] * Measured SAR [W/kg]

UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

9.3 PCS1900 MHz Head SAR

(1) Method of measurement

- Step1. The searching for the worst position
The test was performed in the middle channel.
- Step2. The changing to the DATA transmitter for VOIP mode (GPRS)
The test was performed at the worst position of Step1.
- Step3. The changing to the channels (Low, High)
The test was performed at the worst condition of Step1 to Step2.
- Step4. The repeated measurement.
The test was performed at the worst condition of Step1 to Step3.

Note:

- 1) The GPRS 4up mode was maximum time-based average power. The other slots SAR is not required for other mode because the maximum average output power for other mode is less than 1/4dB higher than that measured GPRS 4up mode.
- 2) The other channel was not required since middle channel SAR value is less than 0.8W/kg.
- 3) When the original highest measured SAR is ≥ 0.80 W/kg, repeat that measurement once.

(2) Simulated Tissue Liquid Parameter confirmation

The dielectric parameters were checked prior to assessment using the HP85070D dielectric probe kit.

The dielectric parameters measurement is reported in each correspondent section.

DIELECTRIC PARAMETERS MEASUREMENT RESULTS										
Date	Ambient Temp. [deg.c]	Relative Humidity [%]	Liquid type	Liquid Temp. [deg.c]	Measured Frequency [MHz]	Parameters	Target Value*1	Measured	Deviation [%]	Limit [%]
23-Jan	24.0	46	HSL 1800	23.5	1880	ϵ_r	40.0	38.7	-3.3	+/-5
						σ [mho/m]	1.40	1.44	2.9	+/-5

ϵ_r : Relative Permittivity / σ : Conductivity

*1 The Target value is a parameter defined in FCC OET65.

(3) Result of Head SAR

HEAD SAR MEASUREMENT RESULTS												
Frequency		Modulation	Max power(Meas)		Upper power of spec		Phantom Section	EUT Set-up Conditions			Measured SAR(1g) [W/kg]	Scaled SAR(1g) * [W/kg]
Channel	[MHz]		[dBm]	[mW]	[dBm]	[mW]		Antenna	Position	Separation [mm]	Maximum of multi-peak	Maximum of multi-peak
Step.1 Position searching												
661	1880.0	GSM	19.71	93.54	20.16	103.75	Left	Fixed	Cheek	0	0.608	0.674
661	1880.0	GSM	19.71	93.54	20.16	103.75	Left	Fixed	Tilt	0	0.119	0.132
661	1880.0	GSM	19.71	93.54	20.16	103.75	Right	Fixed	Cheek	0	0.471	0.522
661	1880.0	GSM	19.71	93.54	20.16	103.75	Right	Fixed	Tilt	0	0.127	0.141
Step.2 VOIP mode (GPRS)												
661	1880.0	GPRS 4 slots	20.57	114.02	20.77	119.40	Left	Fixed	Cheek	0	0.868	0.909
Step.3 Channel change (If SAR level in Step.1 > 0.8 w/kg)												
512	1850.2	GPRS 4 slots	20.67	116.68	20.80	120.23	Left	Fixed	Cheek	0	0.943	0.972
810	1909.8	GPRS 4 slots	20.76	119.12	20.92	123.59	Left	Fixed	Cheek	0	0.978	1.015
Step.4 Repeated measurement												
810	1909.8	GPRS 4 slots	20.76	119.12	20.92	123.59	Left	Fixed	Cheek	0	0.976	1.013

*Scaled SAR= Upper power of spec [mW] / Measured Max power [mW] * Measured SAR [W/kg]

UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

9.4 PCS1900MHz Body SAR

(1) Method of measurement

<Body (Hotspot mode)>

Step1. The searching for the worst position

The test was performed in the middle channel.

Step2. The changing to the voice mode (GSM)

The test was performed at the worst condition of Step1.

Note:

1) The GPRS 4up mode was maximum time-based average power. The other slots SAR is not required for other mode because the maximum average output power for other mode is less than 1/4dB higher than that measured GPRS 4up mode.

2) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg.

(2) Simulated Tissue Liquid Parameter confirmation

The dielectric parameters were checked prior to assessment using the HP85070D dielectric probe kit.

The dielectric parameters measurement is reported in each correspondent section.

DIELECTRIC PARAMETERS MEASUREMENT RESULTS										
Date	Ambient Temp. [deg.c]	Relative Humidity [%]	Liquid type	Liquid Temp. [deg.c]	Measured Frequency [MHz]	Parameters	Target Value*1	Measured	Deviation [%]	Limit [%]
25-Jan	24.0	51	MSL 1800	23.5	1880	ϵ_r	53.3	52.1	-2.2	+/-5
						σ [mho/m]	1.52	1.59	4.4	+/-5

ϵ_r : Relative Permittivity / σ : Conductivity

*1 The Target value is a parameter defined in FCC OET65.

(3) Result of Body SAR

BODY SAR MEASUREMENT RESULTS												
Frequency		Modulation	Max power(Meas)		Upper power of spec		Phantom Section	EUT Set-up Conditions			Measured SAR(1g) [W/kg]	Scaled SAR(1g) * [W/kg]
Channel	[MHz]		[dBm]	[mW]	[dBm]	[mW]		Antenna	Position	Separation [mm]	Maximum of multi-peak	Maximum of multi-peak
Step.1 Position searching												
661	1880.0	GPRS 4slots	20.57	114.02	20.87	122.18	Flat	Fixed	Front	10	0.361	0.387
661	1880.0	GPRS 4slots	20.57	114.02	20.87	122.18	Flat	Fixed	Rear	10	0.318	0.341
661	1880.0	GPRS 4slots	20.57	114.02	20.87	122.18	Flat	Fixed	Left edge	10	0.076	0.081
661	1880.0	GPRS 4slots	20.57	114.02	20.87	122.18	Flat	Fixed	Right edge	10	0.084	0.090
661	1880.0	GPRS 4slots	20.57	114.02	20.87	122.18	Flat	Fixed	Bottom edge	10	0.245	0.263
Step.2 Voice mode (GSM)												
661	1880.0	GSM	19.71	93.54	20.16	103.75	Flat	Fixed	Front	10	0.311	0.345

*Scaled SAR= Upper power of spec [mW] / Measured Max power [mW] * Measured SAR [W/kg]

UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

9.5 WCDMA Band V Head SAR

(1) Method of measurement

Step1. The searching for the worst position

The test was performed in the middle channel.

Note:

- 1) The SAR is not required for AMR mode because the maximum average output power for AMR mode is less than 1/4dB higher than that measured 12.2k RMC mode.
- 2) The other channel was not required since middle channel SAR value is less than 0.8W/kg.
- 3) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg.

(2) Simulated Tissue Liquid Parameter confirmation

The dielectric parameters were checked prior to assessment using the HP85070D dielectric probe kit.

The dielectric parameters measurement is reported in each correspondent section.

DIELECTRIC PARAMETERS MEASUREMENT RESULTS										
Date	Ambient Temp. [deg.c]	Relative Humidity [%]	Liquid type	Liquid Temp. [deg.c]	Measured Frequency [MHz]	Parameters	Target Value*1	Measured	Deviation [%]	Limit [%]
21-Jan	24.0	41	HSL900	23.5	835	ϵ_r	41.5	42.0	1.2	+/-5
						σ [mho/m]	0.90	0.88	-2.7	+/-5

ϵ_r : Relative Permittivity / σ : Conductivity

*1 The Target value is a parameter defined in FCC OET65.

(3) Result of Head SAR

HEAD SAR MEASUREMENT RESULTS												
Frequency		Modulation	Max power(Meas)		Upper power of spec		Phantom Section	EUT Set-up Conditions			Measured SAR(1g) [W/kg]	Scaled SAR(1g) * [W/kg]
Channel	[MHz]		[dBm]	[mW]	[dBm]	[mW]		Antenna	Position	Separatio [mm]	Maximum of multi-peak	Maximum of multi-peak
Step.1 Position searching												
4183	836.6	12.2k RMC	22.35	171.79	23.00	199.53	Left	Fixed	Cheek	0	0.320	0.372
4183	836.6	12.2k RMC	22.35	171.79	23.00	199.53	Left	Fixed	Tilt	0	0.122	0.142
4183	836.6	12.2k RMC	22.35	171.79	23.00	199.53	Right	Fixed	Cheek	0	0.257	0.298
4183	836.6	12.2k RMC	22.35	171.79	23.00	199.53	Right	Fixed	Tilt	0	0.132	0.153

*Scaled SAR= Upper power of spec [mW] / Measured Max power [mW] * Measured SAR [W/kg]

UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

9.6 WCDMA Band V Body SAR

(1) Method of measurement

<Body (Hotspot mode)>

Step1. The searching for the worst position

The test was performed in the middle channel.

Note:

- 1) The BODY SAR is not required for HSDPA mode because the maximum average output power for HSDPA mode is less than 1/4dB higher than that measured 12.2k RMC mode.
- 2) The other channel was not required since middle channel SAR value is less than 0.8W/kg.
- 3) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg.

(2) Simulated Tissue Liquid Parameter confirmation

The dielectric parameters were checked prior to assessment using the HP85070D dielectric probe kit.

The dielectric parameters measurement is reported in each correspondent section.

DIELECTRIC PARAMETERS MEASUREMENT RESULTS										
Date	Ambient Temp. [deg.c]	Relative Humidity [%]	Liquid type	Liquid Temp. [deg.c]	Measured Frequency [MHz]	Parameters	Target Value*1	Measured	Deviation [%]	Limit [%]
22-Jan	24.0	45	MSL 900	23.5	835	ϵ_r	55.2	55.7	1.0	+/-5
						σ [mho/m]	0.97	1.02	4.8	+/-5

ϵ_r : Relative Permittivity / σ : Conductivity

*1 The Target value is a parameter defined in FCC OET65.

(3) Result of Body SAR

BODY SAR MEASUREMENT RESULTS												
Frequency		Modulation	Max power(Meas)		Upper power of spec		Phantom Section	EUT Set-up Conditions			Measured SAR(1g) [W/kg]	Scaled SAR(1g) * [W/kg]
Channel	[MHz]		[dBm]	[mW]	[dBm]	[mW]		Antenna	Position	Separation [mm]	Maximum of multi-peak	Maximum of multi-peak
Step.1 Position searching												
4183	836.6	12.2k RMC	22.35	171.79	23.00	199.53	Flat	Fixed	Front	10	0.213	0.247
4183	836.6	12.2k RMC	22.35	171.79	23.00	199.53	Flat	Fixed	Rear	10	0.290	0.337
4183	836.6	12.2k RMC	22.35	171.79	23.00	199.53	Flat	Fixed	Left edge	10	0.089	0.103
4183	836.6	12.2k RMC	22.35	171.79	23.00	199.53	Flat	Fixed	Right edge	10	0.131	0.152
4183	836.6	12.2k RMC	22.35	171.79	23.00	199.53	Flat	Fixed	Bottom edge	10	0.034	0.039

*Scaled SAR= Upper power of spec [mW] / Measured Max power [mW] * Measured SAR [W/kg]

UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

9.7 WLAN 2.4G Head SAR

(1) Method of measurement

Step1. The searching for the worst position

The test was performed in mode of the maximum average output power

Note:

- 1) The BODY SAR is not required for 11g/n mode because the maximum average output power for 11g/n mode is less than 1/4dB higher than that measured 11b mode.
- 2) The other channel was not required since maximum average output power channel SAR value is less than 0.8W/kg.
- 3) When the original highest measured SAR is ≥ 0.80 W/kg, repeat that measurement once.

(2) Simulated Tissue Liquid Parameter confirmation

The dielectric parameters were checked prior to assessment using the HP85070D dielectric probe kit.

The dielectric parameters measurement is reported in each correspondent section.

DIELECTRIC PARAMETERS MEASUREMENT RESULTS										
Date	Ambient Temp. [deg.c]	Relative Humidity [%]	Liquid type	Liquid Temp. [deg.c]	Measured Frequency [MHz]	Parameters	Target Value*1	Measured	Deviation [%]	Limit [%]
24-Jan	24.0	52	HSL 2450	23.5	2450	ϵ_r	39.2	37.4	-4.7	+/-5
						σ [mho/m]	1.80	1.89	4.9	+/-5

ϵ_r : Relative Permittivity / σ : Conductivity

*1 The Target value is a parameter defined in FCC OET65.

(3) Result of Head SAR

2) Result of Head SAR

HEAD SAR MEASUREMENT RESULTS												
Frequency		Modulation	Max power(Meas)		Upper power of spec		Phantom Section	EUT Set-up Conditions			Measured SAR(1g) [W/kg]	Scaled SAR(1g) * [W/kg]
Channel	[MHz]		[dBm]	[mW]	[dBm]	[mW]		Antenna	Position	Separation [mm]	Maximum of multi-peak	Maximum of multi-peak
Step.1 Position searching												
11	2462	11b 1Mbps	15.79	37.93	16.50	44.67	Left	Fixed	Cheek	0	0.760	0.895
11	2462	11b 1Mbps	15.79	37.93	16.50	44.67	Left	Fixed	Tilt	0	0.374	0.440
11	2462	11b 1Mbps	15.79	37.93	16.50	44.67	Right	Fixed	Cheek	0	0.394	0.464
11	2462	11b 1Mbps	15.79	37.93	16.50	44.67	Right	Fixed	Tilt	0	0.217	0.256
Step.2 Channel change (If SAR level in Step.1 > 0.8 w/kg)												
1	2412	11b 1Mbps	15.71	37.24	16.50	44.67	Left	Fixed	Cheek	0	0.730	0.876
6	2437	11b 1Mbps	15.77	37.76	16.50	44.67	Left	Fixed	Cheek	0	0.839	0.993
Step.3 Repeated measurement												
6	2437	11b 1Mbps	15.77	37.76	16.50	44.67	Left	Fixed	Cheek	0	0.862	1.020

*Scaled SAR= Upper power of spec [mW] / Measured Max power [mW] * Measured SAR [W/kg]

UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

9.8 WLAN 2.4G Body SAR

(1) Method of measurement

<Body (Hotspot mode)>

Step1. The searching for the worst position

The test was performed in mode of the maximum average output power

Note:

- 1) The BODY SAR is not required for 11g/n mode because the maximum average output power for 11g/n mode is less than 1/4dB higher than that measured 11b mode.
- 2) The other channel was not required since maximum average output power channel SAR value is less than 0.8W/kg.
- 3) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg.

(2) Simulated Tissue Liquid Parameter confirmation

The dielectric parameters were checked prior to assessment using the HP85070D dielectric probe kit.

The dielectric parameters measurement is reported in each correspondent section.

DIELECTRIC PARAMETERS MEASUREMENT RESULTS										
Date	Ambient Temp. [deg.c]	Relative Humidity [%]	Liquid type	Liquid Temp. [deg.c]	Measured Frequency [MHz]	Parameters	Target Value*1	Measured	Deviation [%]	Limit [%]
22-Jan	24.0	45	MSL 2450	23.5	2450	ϵ_r	52.7	51.5	-2.2	+/-5
						σ [mho/m]	1.95	2.03	4.0	+/-5

ϵ_r : Relative Permittivity / σ : Conductivity

*1 The Target value is a parameter defined in FCC OET65.

(3) Result of Body SAR

BODY SAR MEASUREMENT RESULTS												
Frequency		Modulation	Max power(Meas)		Upper power of spec		Phantom Section	EUT Set-up Conditions			Measured SAR(1g) [W/kg]	Scaled SAR(1g) * [W/kg]
Channel	[MHz]		[dBm]	[mW]	[dBm]	[mW]		Antenna	Position	Separation [mm]	Maximum of multi-peak	Maximum of multi-peak
Step.1 Position searching												
11	2462	11b 1Mbps	15.79	37.93	16.50	44.67	Flat	Fixed	Front	10	0.126	0.148
11	2462	11b 1Mbps	15.79	37.93	16.50	44.67	Flat	Fixed	Rear	10	0.093	0.110
11	2462	11b 1Mbps	15.79	37.93	16.50	44.67	Flat	Fixed	Left edge	10	0.169	0.199
11	2462	11b 1Mbps	15.79	37.93	16.50	44.67	Flat	Fixed	Top edge	10	0.048	0.057

*Scaled SAR= Upper power of spec [mW] / Measured Max power [mW] * Measured SAR [W/kg]

UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

SECTION 10 : Simultaneous transmission SAR test exclusion considerations

10.1 Estimated SAR is calculated about Bluetooth

When standalone SAR test exclusion applies to an antenna that transmits simultaneously with other antennas, the standalone SAR must be estimated according to following to determine simultaneous transmission SAR test exclusion:

(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)]·[$\sqrt{f(\text{GHz})/x}$] W/kg for test separation distances ≤ 50 mm;

where $x = 7.5$ for 1-g SAR, and $x = 18.75$ for 10-g SAR.

Band	Mode	Upper frequency of band *1	Upper power of spec	Min distance *2	Calculation of Estimated SAR*3
Bluetooth	EDR(DH5)	2480 [MHz] (79 ch)	6.5 [dBm] 4.47 [mW]	5 [mm]	0.188 [W/kg]

*1 The upper frequency of the frequency band of Bluetooth was used in order to calculate the maximum estimated SAR.

*2 Refer to Appendix 4. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied.

*3 (max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)]·[$\sqrt{f(\text{GHz})/x}$] W/kg

*4 The measured output power is the upper power on specification.

10.2 Result of SUM Σ SAR1g of Head

SUM Σ SAR1g (GSM850 + WLAN(2.4G) or Bluetooth)						
Position	Separation [mm]	Stand alone SAR(1g) [W/kg]			SUM SAR(1g)[W/kg]	SUM SAR(1g)[W/kg]
		GSM850 *1	WLAN 2.4G *1	Bluetooth *2	WWAN + WLAN(2.4G)	WWAN + Bluetooth
Left cheek	0	0.692	1.020	0.188	1.712	0.880
Left tilt	0	0.276	0.440	0.188	0.717	0.464
Right cheek	0	0.532	0.464	0.188	0.996	0.720
Right tilt	0	0.259	0.256	0.188	0.514	0.446

SUM Σ SAR1g (PCS1900 + WLAN(2.4G) or Bluetooth)						
Position	Separation [mm]	Stand alone SAR(1g) [W/kg]			SUM SAR(1g)[W/kg]	SUM SAR(1g)[W/kg]
		PCS1900 *1	WLAN 2.4G *1	Bluetooth *2	WWAN + WLAN(2.4G)	WWAN + Bluetooth
Left cheek	0	1.015	1.020	0.188	2.034	1.202
Left tilt	0	0.132	0.440	0.188	0.572	0.320
Right cheek	0	0.522	0.464	0.188	0.986	0.710
Right tilt	0	0.141	0.256	0.188	0.396	0.328

SUM Σ SAR1g (WCDMA V + WLAN(2.4G) or Bluetooth)						
Position	Separation [mm]	Stand alone SAR(1g) [W/kg]			SUM SAR(1g)[W/kg]	SUM SAR(1g)[W/kg]
		WCDMA V *1	WLAN 2.4G *1	Bluetooth *2	WWAN + WLAN(2.4G)	WWAN + Bluetooth
Left cheek	0	0.372	1.020	0.188	1.391	0.559
Left tilt	0	0.142	0.440	0.188	0.582	0.329
Right cheek	0	0.298	0.464	0.188	0.762	0.486
Right tilt	0	0.153	0.256	0.188	0.409	0.341

: Highest SUM Σ SAR1g Head simultaneous transmission

*1 Use the measured SAR to determine simultaneous transmission SAR test exclusion.

*2 Use the estimated SAR to determine simultaneous transmission SAR test exclusion.

10.3 Result of SUM Σ SAR1g of Body

SUM Σ SAR1g (GSM850 + WLAN(2.4G) or Bluetooth)						
Position	Separation [mm]	Stand alone SAR(1g) [W/kg]			SUM SAR(1g)[W/kg]	SUM SAR(1g)[W/kg]
		GSM850 *1	WLAN 2.4G *1	Bluetooth *2	WWAN +	WWAN + Bluetooth
Front	10	0.593	0.148	0.188	0.742	0.781
Rear	10	0.720	0.110	0.188	0.829	0.907
Left edge	10	0.211	0.199	0.188	0.410	0.399
Right edge	10	0.309	0.000	0.188	0.309	0.497
Top edge	10	-	0.057	0.188	-	-
Bottom edge	10	0.079	-	0.188	-	0.267

SUM Σ SAR1g (PCS1900 + WLAN(2.4G) or Bluetooth)						
Position	Separation [mm]	Stand alone SAR(1g) [W/kg]			SUM SAR(1g)[W/kg]	SUM SAR(1g)[W/kg]
		PCS1900 *1	WLAN 2.4G *1	Bluetooth *2	WWAN +	WWAN + Bluetooth
Front	10	0.387	0.148	0.188	0.535	0.574
Rear	10	0.341	0.110	0.188	0.450	0.528
Left edge	10	0.081	0.199	0.188	0.280	0.269
Right edge	10	0.090	0.000	0.188	0.090	0.278
Top edge	10	-	0.057	0.188	-	-
Bottom edge	10	0.263	-	0.188	-	0.450

SUM Σ SAR1g (WCDMA V + WLAN(2.4G) or Bluetooth)						
Position	Separation [mm]	Stand alone SAR(1g) [W/kg]			SUM SAR(1g)[W/kg]	SUM SAR(1g)[W/kg]
		WCDMA V *1	WLAN 2.4G *1	Bluetooth *2	WWAN +	WWAN + Bluetooth
Front	10	0.247	0.148	0.188	0.396	0.435
Rear	10	0.337	0.110	0.188	0.446	0.524
Left edge	10	0.103	0.199	0.188	0.302	0.291
Right edge	10	0.152	0.000	0.188	0.152	0.340
Top edge	10	-	0.057	0.188	-	-
Bottom edge	10	0.039	-	0.188	-	0.227

: Highest SUM Σ SAR1g Body simultaneous transmission

*1 Use the measured SAR to determine simultaneous transmission SAR test exclusion.

*2 Use the estimated SAR to determine simultaneous transmission SAR test exclusion.

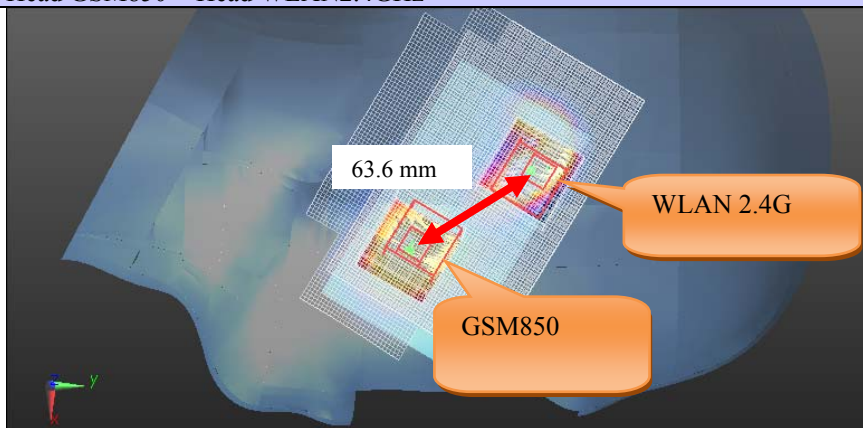
10.4 SAR to Peak Location Separation Ratio

SAR to Peak Location Separation Ratio

$= (\sum 1g \text{ SAR})^{1.5} [\text{W/kg}] / \text{peak location separation} [\text{mm}] \leq 0.04$ (rounded to two decimal digits)

$\sum \text{SAR} 1g > 1.6 \text{ W/kg}$ Condition	$\sum 1\text{-g SAR (W/kg)}$	3D distance (mm)	SAR to peak location separation ratio ≤ 0.04
Head GSM850 + Head WLAN2.4GHz	1.712	63.60	0.04
Head PCS1900 + Head WLAN2.4GHz	2.034	70.60	0.04

Head GSM850 + Head WLAN2.4GHz

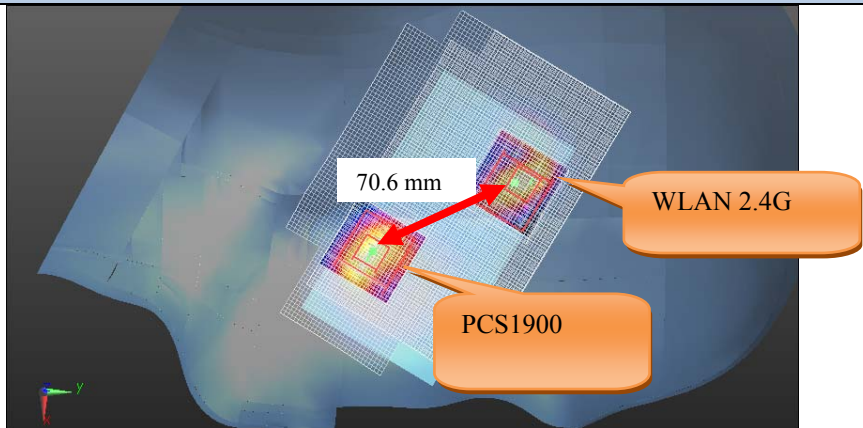


Mode		Value of SAR mW/g	X m	Y m	Z m
1	GSM850	0.692	0.0685	0.267	-0.173
2	WLAN 2.4G	1.020	0.035	0.321	-0.174

(d) mm	63.6
	$\text{SQRT}((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)$

(d)cm : The actual measured distance between peak SAR locations

Head PCS1900 + Head WLAN2.4GHz



Mode		Value of SAR mW/g	X m	Y m	Z m
1	PCS1900	1.015	0.0668	0.258	-0.172
2	WLAN 2.4G	1.020	0.035	0.321	-0.174

(d) mm	70.6
	$\text{SQRT}((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)$

(d)cm : The actual measured distance between peak SAR locations

UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

SECTION 11 Test instruments

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MPM-01	Power Meter	Agilent	E4417A	GB41290639	SAR	2012/03/05 * 12
MPSE-01	Power Sensor	Agilent	E9300B	US40010300	SAR	2012/02/29 * 12
MPSE-03	Power sensor	Agilent	E9327A	US40440576	SAR	2012/03/07 * 12
MAT-15	Attenuator(30dB)	Agilent	8498A	US40010300	SAR	2012/03/15 * 12
MSG-10	Signal Generator	Agilent	N5181A	MY47421098	SAR	2012/10/08 * 12
MRFA-12	RF Power Amplifier	MILMEGA	AS0825-65	1015249	SAR(0.8-2.5GHz)	2012/08/28 * 12
MHDC-11	Dual Directional Coupler	Hewlett Packard	778D	16605	SAR(0.1-2GHz)	Pre Check
MHDC-12	Dual Directional Coupler	Hewlett Packard	772D	2839A0016	SAR	Pre Check
MNA-01	Network Analyzer	Agilent/HP	E8358A	US41080381	SAR	2012/09/14 * 12
MDPK-01	Dielectric probe kit	Agilent	85070D	702	SAR	2012/08/14 * 12
MNCK-01	Type N Calibration Kit	Agilent	85032F	MY41495257	SAR	2012/09/18 * 12
MPB-07	Dosimetric E-Field Probe	Schmid&Partner Engineering AG	EX3DV4	3825	SAR	2012/12/10 * 12
MDAE-01	Data Acquisition Electronics	Schmid&Partner Engineering AG	DAE4	509	SAR	2012/07/13 * 12
COTS-MSAR-03	Dasy5	Schmid&Partner Engineering AG	DASY52.6.1.408	-	SAR	-
COTS-MSAR-02	S-Parameter Network Analyzer	Agilent	—	—	SAR	-
MDA-05	Dipole Antenna	Schmid&Partner Engineering AG	D900V2	155	SAR	2010/12/06 * 36
MDA-06	Dipole Antenna	Schmid&Partner Engineering AG	D1800V2	2d040	SAR	2010/12/09 * 36
MDA-07	Dipole Antenna	Schmid&Partner Engineering AG	D2450V2	713	SAR	2010/09/13 * 36
MPF-02	2mmOval Flat Phantom ERI 4.0	Schmid&Partner Engineering AG	QD VA 001B (ERI4.0)	1045	SAR	2012/05/08 * 12
MPSAM-02	SAM Phantom	Schmid&Partner Engineering AG	SAM Twin Phantom V4.0	1333	SAR	2012/05/07 * 12
MDH-01	Device holder	Schmid&Partner Engineering AG	Mounting device for transmitter	-	SAR	Pre Check
MOS-26	Thermo-Hygrometer	CUSTOM	CTH-201	A08Q29	SAR	2012/05/14 * 12
MOS-10	Digital thermometer	HANNA	Checktemp-2	MOS-10	SAR	2012/08/06 * 12
MBM-13	Barometer	Sunoh	SBR121	837	SAR	2011/03/14 * 36
HSL/MSL900					Daily check	Target value ± 5%
HSL/MSL1800					Daily check	Target value ± 5%
HSL/MSL2450					Daily check	Target value ± 5%
SAR room					Daily check	Ambient Noise<0.012W/kg

UL Japan, Inc.**Head Office EMC Lab.**

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MPM-08	Power Meter	Anritsu	ML2495A	6K00003338	Power	2012/10/08 * 12
MPSE-11	Power sensor	Anritsu	MA2411B	011737	Power	2012/10/08 * 12
MAT-24	Attenuator(10dB) (above1GHz)	Agilent	8493C	71389	Power	2012/06/27 * 12
MCC-137	Microwave cable	HUBER+SUHNER	SUCOFLEX 102	37954/2	Power	2012/10/19 * 12
MAT-10	Attenuator(10dB)	Weinschel Corp	2	BL1173	Power	2012/11/06 * 12
MCC-64	Coaxial Cable	UL Japan	-	-	Power	2012/03/22 * 12
MOS-14	Thermo-Hygrometer	Custom	CTH-201	-	Power	2012/02/06 * 12
MOS-04	Digital Humidity Indicator	N.T	NT-1800	MOS04	Power	2012/02/06 * 12
MAT-24	Attenuator(10dB) (above1GHz)	Agilent	8493C	71389	Power	2012/06/27 * 12
MCC-144	Microwave Cable	Junkosha	MWX221	1207S407	Power	2012/08/03 * 12
MPSC-01	Power splitters/ Combiners	Mini-Circuit	ZFSC-2-2500	0124	Power	2012/09/12 * 12
MBTR15	CBT Bluetooth Tester	Rohde & Schwarz	CBT	100401	Power	2011/05/25 * 24
MPM-09	Power Meter	Anritsu	ML2495A	6K00003348	Power	2012/10/08 * 12
MPSE-12	Power sensor	Anritsu	MA2411B	011598	Power	2012/10/08 * 12
MOS-14	Thermo-Hygrometer	Custom	CTH-201	-	Power	2012/02/06 * 12
MPM-13	Power Meter	Anritsu	ML2495A	0824014	Power	2012/11/26 * 12
MPSE-18	Power sensor	Anritsu	MA2411B	0738174	Power	2012/11/26 * 12
MPSC-01	Power splitters/Combiners	Mini-Circuit	ZFSC-2-2500	0124	Power	2012/09/12 * 12
MAT-24	Attenuator(10dB)(above1 GHz)	Agilent	8493C	71389	Power	2012/06/27 * 12
MCC-99	Microwave Cable 1G- 40GHz	Schner	SUCOFLEX102	30820/2	Power	2012/05/09 * 12
MURC-02	Wireless Communication Test Set	Agilent	E5515C	GB47050683	Power	2012/12/19 * 12

The expiration date of the calibration is the end of the expired month.

All equipment is calibrated with valid calibrations. Each measurement data is traceable to the national or international standards.

As for some calibrations performed after the tested dates, those test equipment have been controlled by means of an unbroken chains of calibrations.

UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

APPENDIX 1 : SAR Measurement data

1. Evaluation procedure

The evaluation was performed with the following procedure:

Step 1: Measurement of the E-field at a fixed location above the ear point or central position of flat phantom was used as a reference value for assessing the power drop.

Step 2: The SAR distribution at the exposed side of head or body position was measured at a distance of each device from the inner surface of the shell. The area covered the entire dimension of the antenna of EUT and the horizontal grid spacing was 15 mm x 15 mm, 12 mm x 12 mm or 10mm x 10mm. Based on these data, the area of the maximum absorption was determined by spline interpolation.

Step 3: Around this point found in the Step 2 (area scan), a volume of 30mm x 30mm x 30mm or more was assessed by measuring 7 x 7 x 7 points at least for below 3GHz.

And for any secondary peaks found in the Step2 which are within 2dB of maximum peak and not with this Step3 (Zoom scan) is repeated. On the basis of this data set, the spatial peak SAR value was evaluated under the following procedure:

(1). The data at the surface were extrapolated, since the center of the dipoles is 1mm(EX3DV4) away from the tip of the probe and the distance between the surface and the lowest measuring point is 1.3 mm. The extrapolation was based on a least square algorithm [4]. A polynomial of the fourth order was calculated through the points in z-axes.

This polynomial was then used to evaluate the points between the surface and the probe tip.

(2). The maximum interpolated value was searched with a straightforward algorithm. Around this maximum the SAR values averaged over the spatial volumes (1 g or 10 g) were computed by the 3D-Spline interpolation algorithm. The 3D-Spline is composed of three one-dimensional splines with the "Not a knot"-condition (in x, y and z-directions) [4], [5]. The volume was integrated with the trapezoidal-algorithm. One thousand points (10 x 10 x 10) were interpolated to calculate the average.

(3). All neighboring volumes were evaluated until no neighboring volume with a higher average value was found.

Step 4: Re-measurement of the E-field at the same location as in Step 1.

2. Measurement data

i) GSM850 Head

GT-S5303B GSM850 GSM Left cheek 836.6MHz

Communication System: GSM850; Communication System Band: Exported from older format (data unavailable - please correct).; Frequency: 836.6 MHz; Duty Cycle: 1:8.30042

Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.879$ mho/m; $\epsilon_r = 41.996$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(9.5, 9.5, 9.5); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: SAM with CRP; Type: SAM;

Measurement SW: DASY52, Version 52.8 (3);

Left-Hand-Side HSL/Touch Position - Mid/Area Scan (61x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.772 W/kg

Left-Hand-Side HSL/Touch Position - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.662 V/m; Power Drift = -0.11 dB

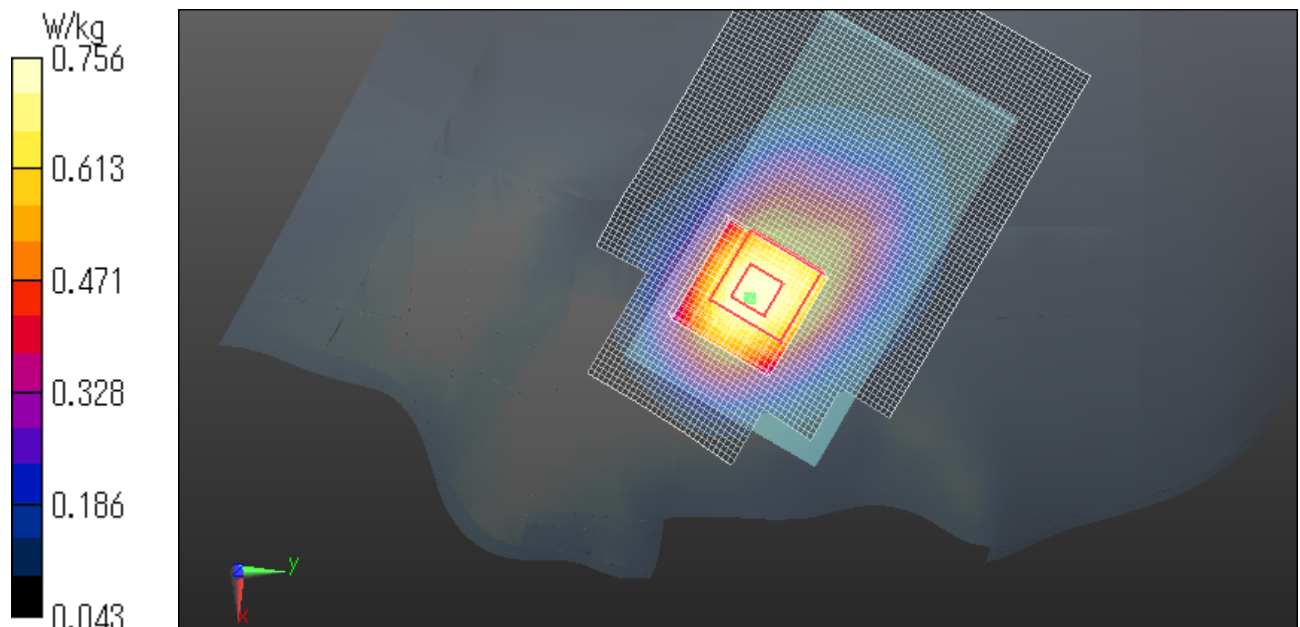
Peak SAR (extrapolated) = 0.910 W/kg

SAR(1 g) = 0.617 W/kg; SAR(10 g) = 0.425 W/kg

Maximum value of SAR (measured) = 0.756 W/kg

Date: 2013/01/21

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

GT-S5303B GSM850 GSM Left tilt 836.6MHz

Communication System: GSM850; Communication System Band: Exported from older format (data unavailable - please correct).; Frequency: 836.6 MHz; Duty Cycle: 1:8.30042

Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.879$ mho/m; $\epsilon_r = 41.996$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(9.5, 9.5, 9.5); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: SAM with CRP; Type: SAM;

Measurement SW: DASY52, Version 52.8 (3);

Area Scan (61x91x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.274 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 10.655 V/m; Power Drift = -0.02 dB

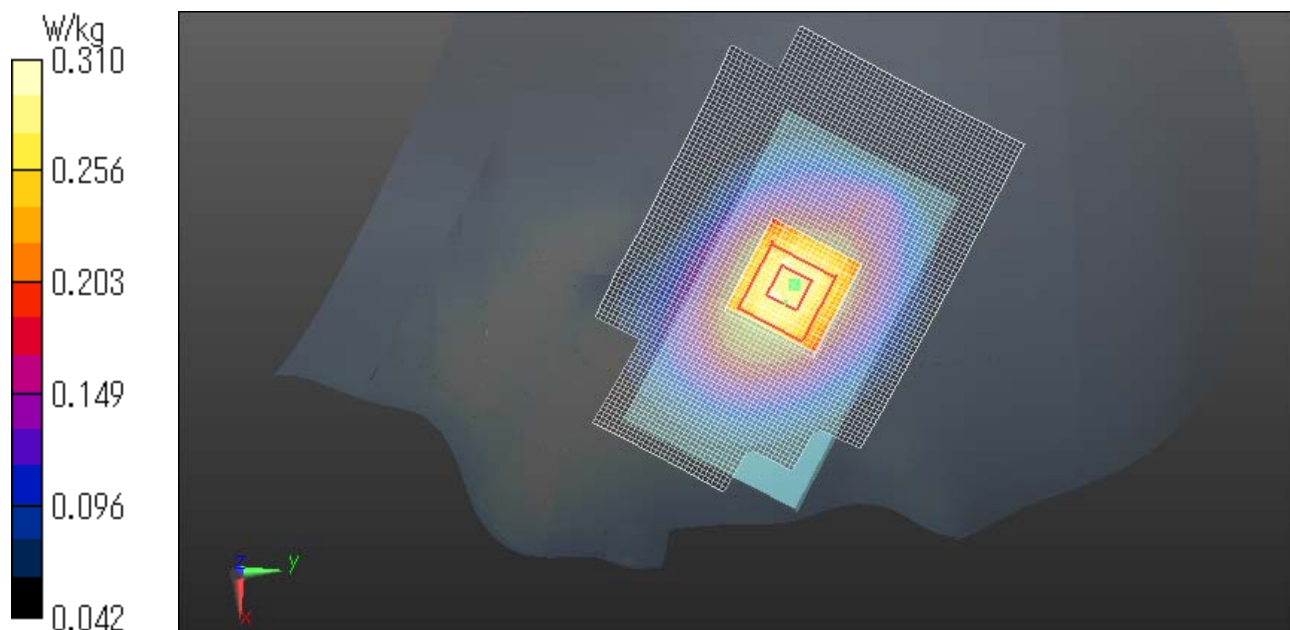
Peak SAR (extrapolated) = 0.341 W/kg

SAR(1 g) = 0.271 W/kg; SAR(10 g) = 0.203 W/kg

Maximum value of SAR (measured) = 0.310 W/kg

Date: 2013/01/21

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



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Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

GT-S5303B GSM850 GSM Right cheek 836.6MHz

Communication System: GSM850; Communication System Band: Exported from older format (data unavailable - please correct).; Frequency: 836.6 MHz; Duty Cycle: 1:8.30042

Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.879$ mho/m; $\epsilon_r = 41.996$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(9.5, 9.5, 9.5); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: SAM with CRP; Type: SAM;

Measurement SW: DASY52, Version 52.8 (3);

Right-Hand-Side HSL/Touch Position - Mid/Area Scan (61x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.750 W/kg

Right-Hand-Side HSL/Touch Position - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.433 V/m; Power Drift = -0.07 dB

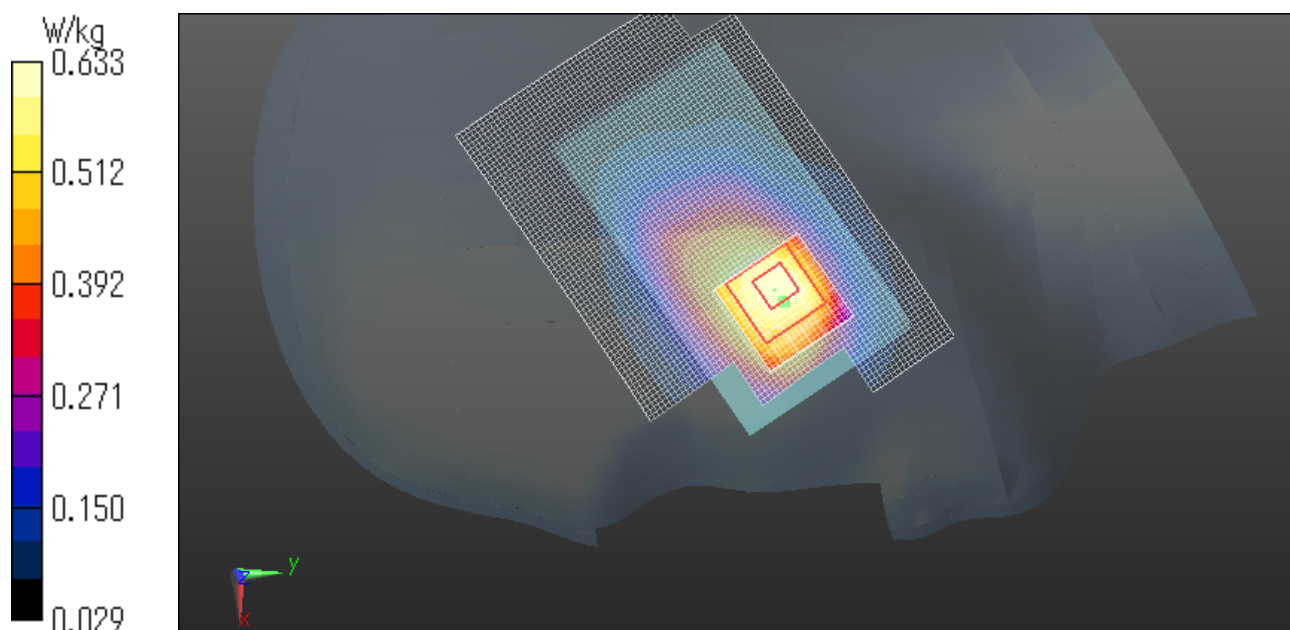
Peak SAR (extrapolated) = 0.744 W/kg

SAR(1 g) = 0.522 W/kg; SAR(10 g) = 0.349 W/kg

Maximum value of SAR (measured) = 0.633 W/kg

Date: 2013/01/21

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

GT-S5303B GSM850 GSM Right tilt 836.6MHz

Communication System: GSM850; Communication System Band: Exported from older format (data unavailable - please correct).; Frequency: 836.6 MHz; Duty Cycle: 1:8.30042

Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.879$ mho/m; $\epsilon_r = 41.996$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(9.5, 9.5, 9.5); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: SAM with CRP; Type: SAM;

Measurement SW: DASY52, Version 52.8 (3);

Area Scan (61x91x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.301 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 12.752 V/m; Power Drift = 0.01 dB

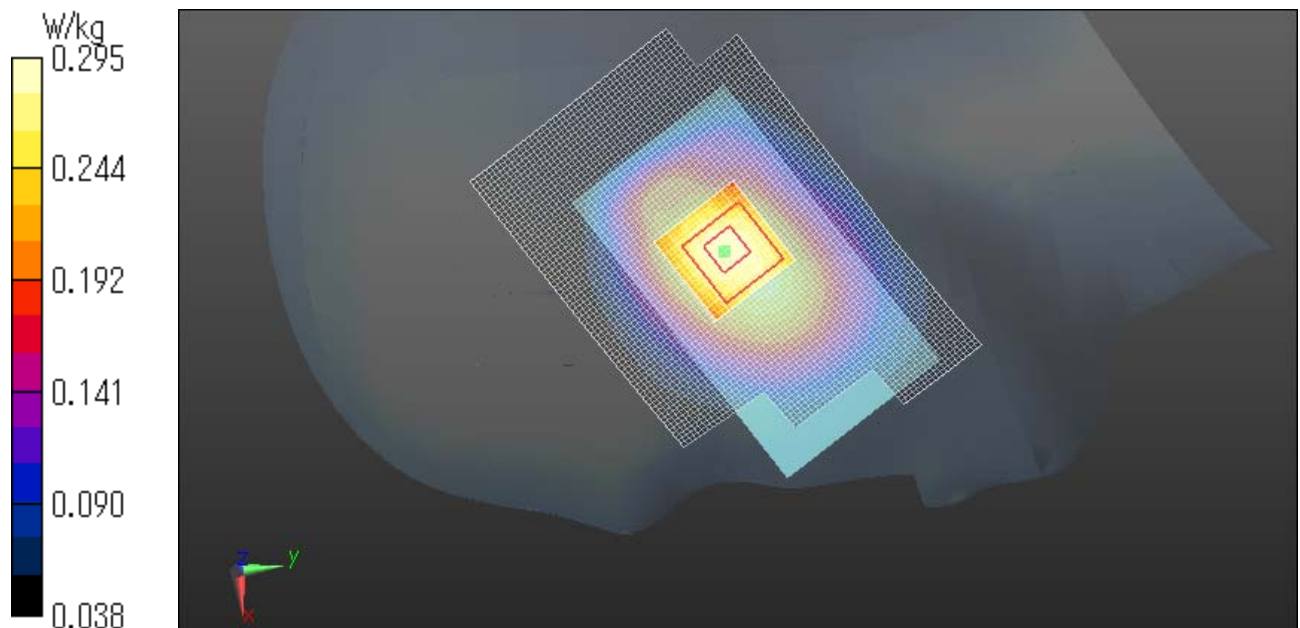
Peak SAR (extrapolated) = 0.322 W/kg

SAR(1 g) = 0.254 W/kg; SAR(10 g) = 0.190 W/kg

Maximum value of SAR (measured) = 0.295 W/kg

Date: 2013/01/21

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

GT-S5303B GSM850 GPRS 4slots Left cheek 836.6MHz

Communication System: GSM850; Communication System Band: Exported from older format (data unavailable - please correct).; Frequency: 836.6 MHz; Duty Cycle: 1:2.09991

Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.879$ mho/m; $\epsilon_r = 41.996$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(9.5, 9.5, 9.5); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: SAM with CRP; Type: SAM;

Measurement SW: DASY52, Version 52.8 (3);

Area Scan (61x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.958 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.587 V/m; Power Drift = -0.16 dB

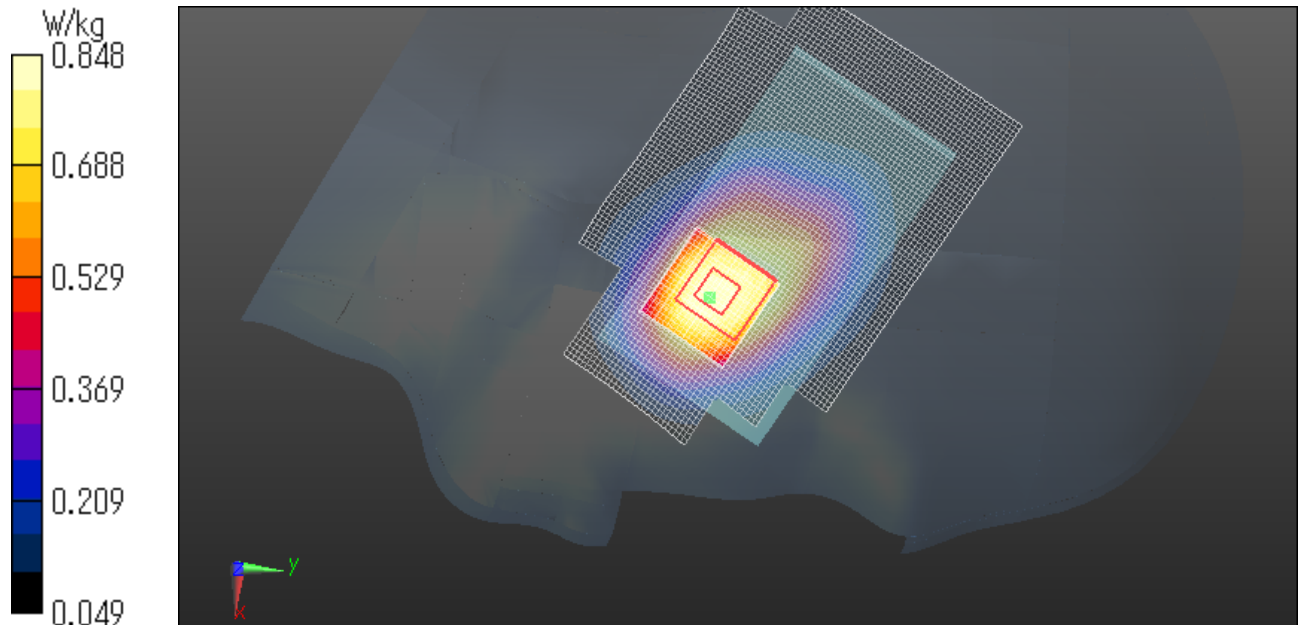
Peak SAR (extrapolated) = 1.02 W/kg

SAR(1 g) = 0.687 W/kg; SAR(10 g) = 0.475 W/kg

Maximum value of SAR (measured) = 0.848 W/kg

Date: 2013/01/21

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

Z Scan at Maximum Head SAR position in GSM850 band

GT-S5303B GSM850 GPRS 4slots Left cheek 836.6MHz

Communication System: GSM850; Communication System Band: Exported from older format (data unavailable - please correct).; Frequency: 836.6 MHz; Duty Cycle: 1:2.09991

Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.879$ mho/m; $\epsilon_r = 41.996$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(9.5, 9.5, 9.5); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: SAM with CRP; Type: SAM;

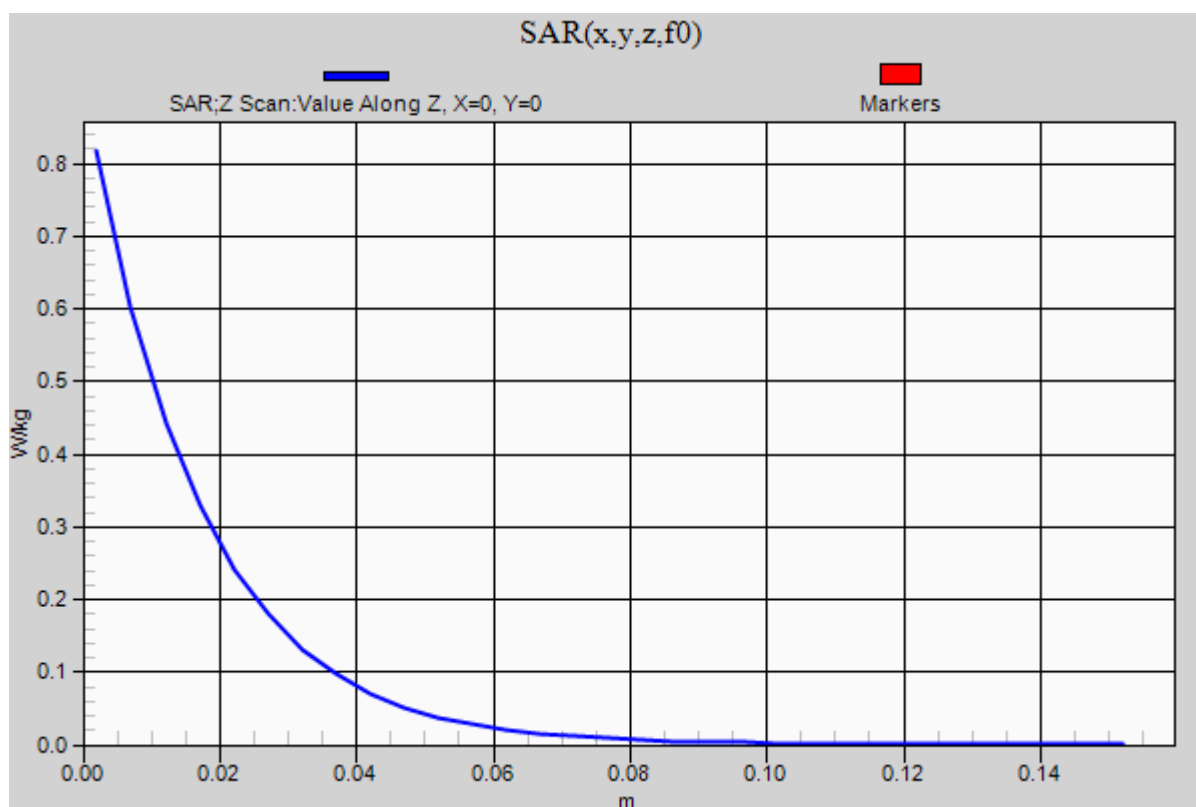
Measurement SW: DASY52, Version 52.8 (3);

Z Scan (1x1x31): Measurement grid: dx=20mm, dy=20mm, dz=5mm

Maximum value of SAR (measured) = 0.817 W/kg

Date: 2013/01/21

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

ii) **GSM850 Body**

GT-S5303B GSM850 GPRS 4slots Front 10mm 836.6MHz

Communication System: GSM850; Communication System Band: Exported from older format (data unavailable - please correct).; Frequency: 836.6 MHz; Duty Cycle: 1:2.09991

Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.946$ mho/m; $\epsilon_r = 55.735$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(9.55, 9.55, 9.55); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx

Measurement SW: DASY52, Version 52.8 (3);

Area Scan (61x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.665 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 13.041 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 0.818 W/kg

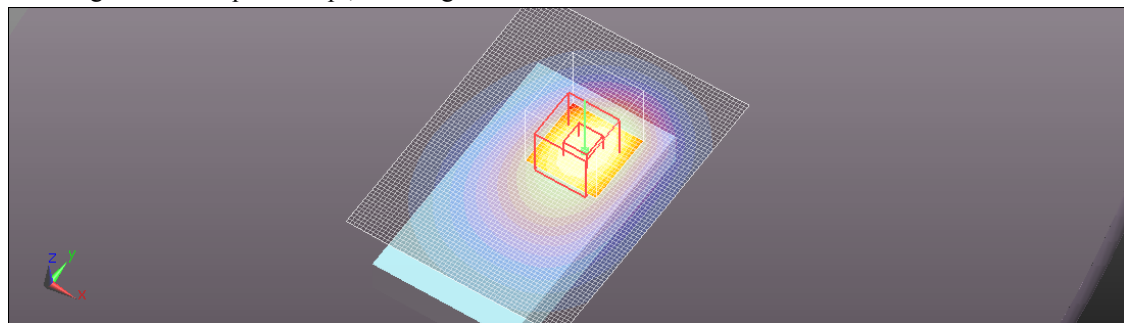
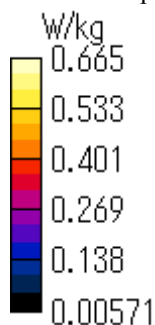
SAR(1 g) = 0.568 W/kg; SAR(10 g) = 0.395 W/kg

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.698 W/kg

Date: 2013/01/22

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



GT-S5303B GSM850 GPRS 4slots Rear 10mm 836.6MHz

Communication System: GSM850; Communication System Band: Exported from older format (data unavailable - please correct).; Frequency: 836.6 MHz; Duty Cycle: 1:2.09991

Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.946$ mho/m; $\epsilon_r = 55.735$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(9.55, 9.55, 9.55); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxxx

Measurement SW: DASY52, Version 52.8 (3);

Area Scan (61x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.803 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 15.367 V/m; Power Drift = -0.15 dB

Peak SAR (extrapolated) = 0.951 W/kg

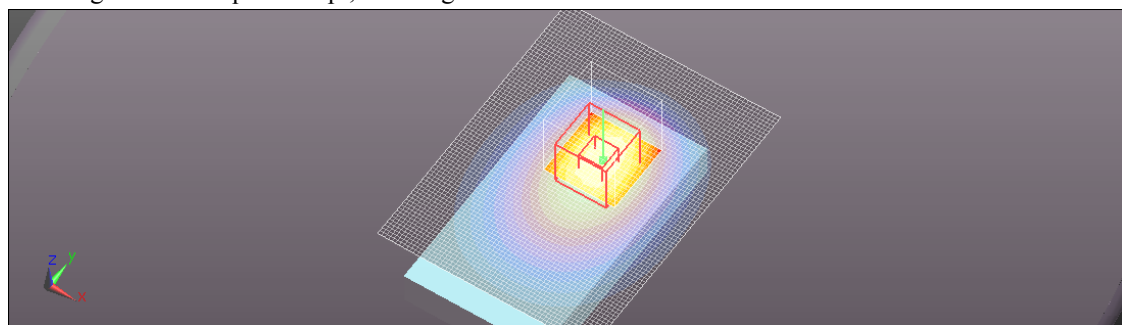
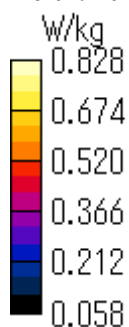
SAR(1 g) = 0.689 W/kg; SAR(10 g) = 0.489 W/kg

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.828 W/kg

Date: 2013/01/22

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



Z Scan at Maximum Body SAR position in GSM850 band

GT-S5303B GSM850 GPRS 4slots Rear 10mm 836.6MHz

Communication System: GSM850; Communication System Band: Exported from older format (data unavailable - please correct).; Frequency: 836.6 MHz; Duty Cycle: 1:2.09991

Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.946$ mho/m; $\epsilon_r = 55.735$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(9.55, 9.55, 9.55); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx

Measurement SW: DASY52, Version 52.8 (3);

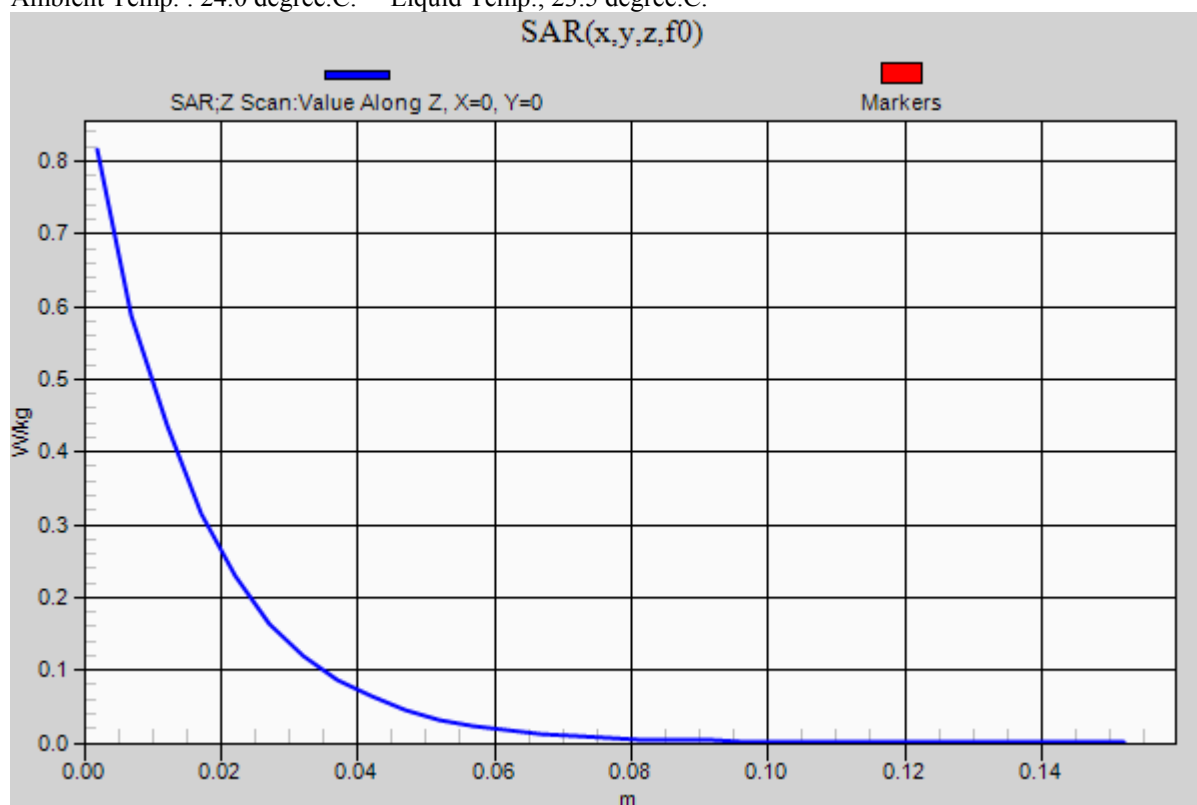
Z Scan (1x1x31): Measurement grid: dx=20mm, dy=20mm, dz=5mm

Info: [Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.816 W/kg

Date: 2013/01/22

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

GT-S5303B GSM850 GPRS 4slots Left edge 10mm 836.6MHz

Communication System: GSM850; Communication System Band: Exported from older format (data unavailable - please correct).; Frequency: 836.6 MHz; Duty Cycle: 1:2.09991

Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.946$ mho/m; $\epsilon_r = 55.735$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(9.55, 9.55, 9.55); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx

Measurement SW: DASY52, Version 52.8 (3);

Area Scan 2 2 (61x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.239 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.274 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.289 W/kg

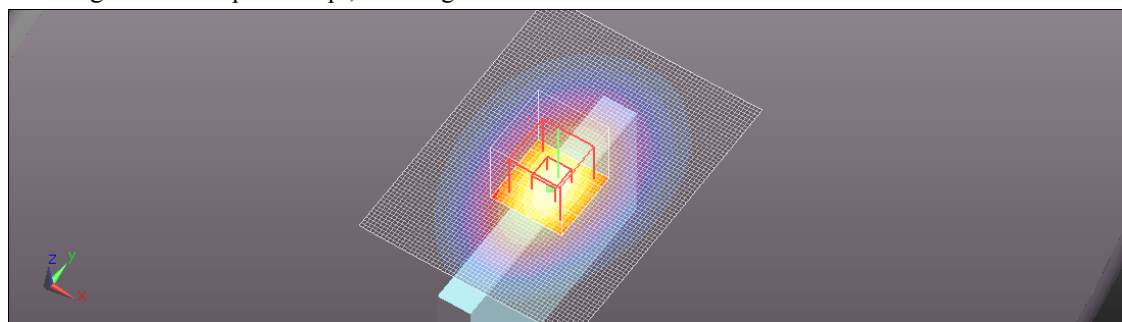
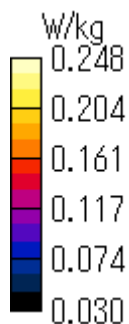
SAR(1 g) = 0.202 W/kg; SAR(10 g) = 0.141 W/kg

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.248 W/kg

Date: 2013/01/22

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



GT-S5303B GSM850 GPRS 4slots Right edge 10mm 836.6MHz

Communication System: GSM850; Communication System Band: Exported from older format (data unavailable - please correct).; Frequency: 836.6 MHz; Duty Cycle: 1:2.09991

Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.946$ mho/m; $\epsilon_r = 55.735$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(9.55, 9.55, 9.55); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx

Measurement SW: DASY52, Version 52.8 (3);

Area Scan (61x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.355 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 15.542 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 0.418 W/kg

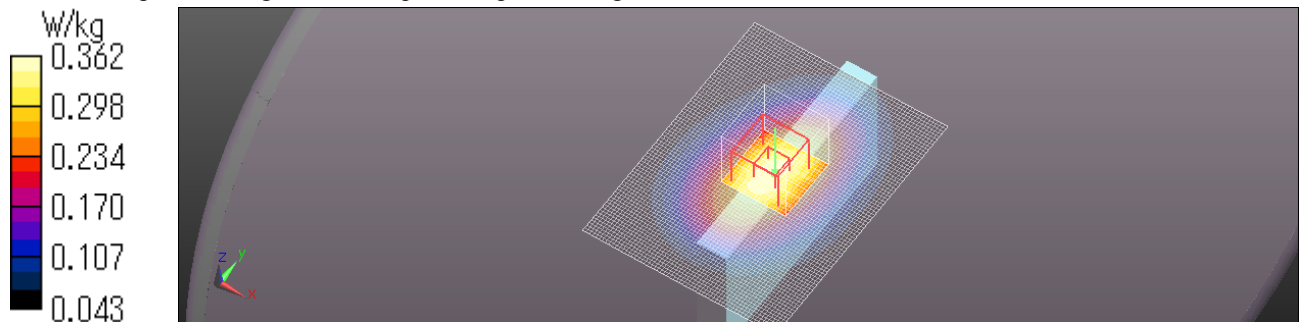
SAR(1 g) = 0.296 W/kg; SAR(10 g) = 0.207 W/kg

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.362 W/kg

Date: 2013/01/22

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



GT-S5303B GSM850 GPRS 4slots Bottom edge 10mm 836.6MHz

Communication System: GSM850; Communication System Band: Exported from older format (data unavailable - please correct).; Frequency: 836.6 MHz; Duty Cycle: 1:2.09991

Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.946$ mho/m; $\epsilon_r = 55.735$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(9.55, 9.55, 9.55); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx

Measurement SW: DASY52, Version 52.8 (3);

Area Scan 2 (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.0937 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.959 V/m; Power Drift = -0.20 dB

Peak SAR (extrapolated) = 0.153 W/kg

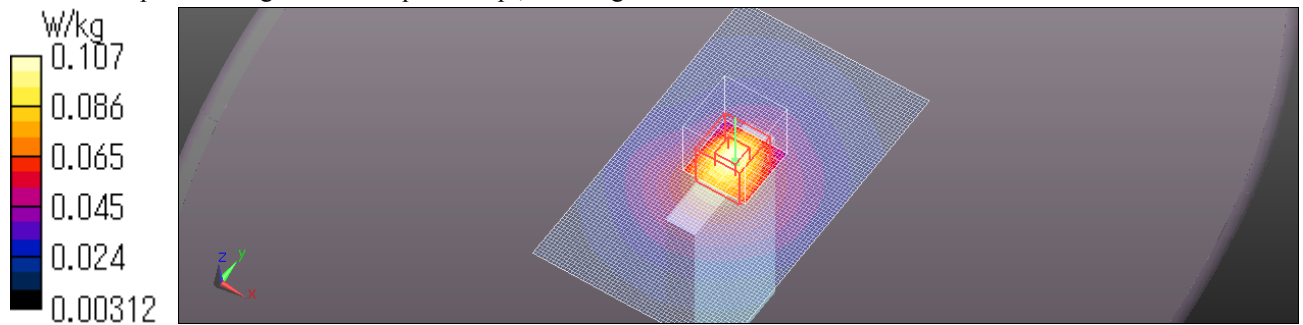
SAR(1 g) = 0.076 W/kg; SAR(10 g) = 0.046 W/kg

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.107 W/kg

Date: 2013/01/22

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



GT-S5303B GSM850 GSM Rear 10mm 836.6MHz

Communication System: GSM850; Communication System Band: Exported from older format (data unavailable - please correct).; Frequency: 836.6 MHz; Duty Cycle: 1:8.30042

Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.946$ mho/m; $\epsilon_r = 55.735$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(9.55, 9.55, 9.55); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx

Measurement SW: DASY52, Version 52.8 (3);

Area Scan (61x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.692 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 13.801 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.839 W/kg

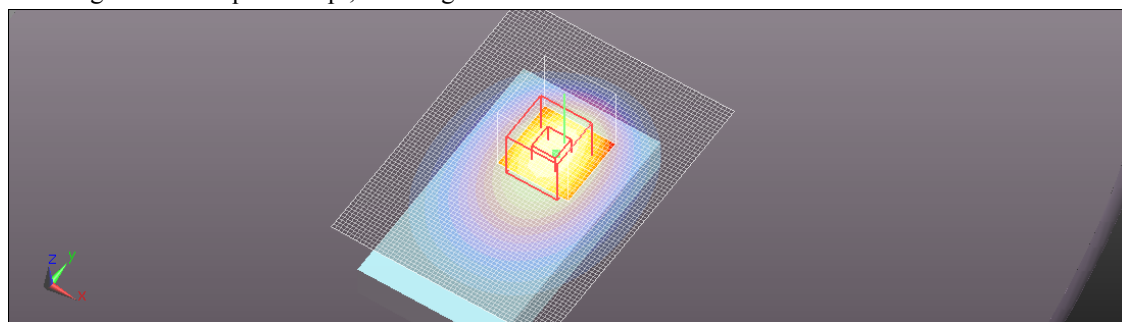
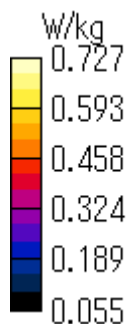
SAR(1 g) = 0.606 W/kg; SAR(10 g) = 0.431 W/kg

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.727 W/kg

Date: 2013/01/22

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



iii) PCS1900 Head

GT-S5303B PCS1900 GSM Left cheek 1880.0MHz

Communication System: PCS1900; Communication System Band: PCS1900; Frequency: 1880 MHz; Duty Cycle: 1:8.30042

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.441$ mho/m; $\epsilon_r = 38.671$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(7.93, 7.93, 7.93); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: SAM with CRP; Type: SAM;

Measurement SW: DASY52, Version 52.8 (3);

Area Scan (61x91x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.861 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 7.253 V/m; Power Drift = -0.14 dB

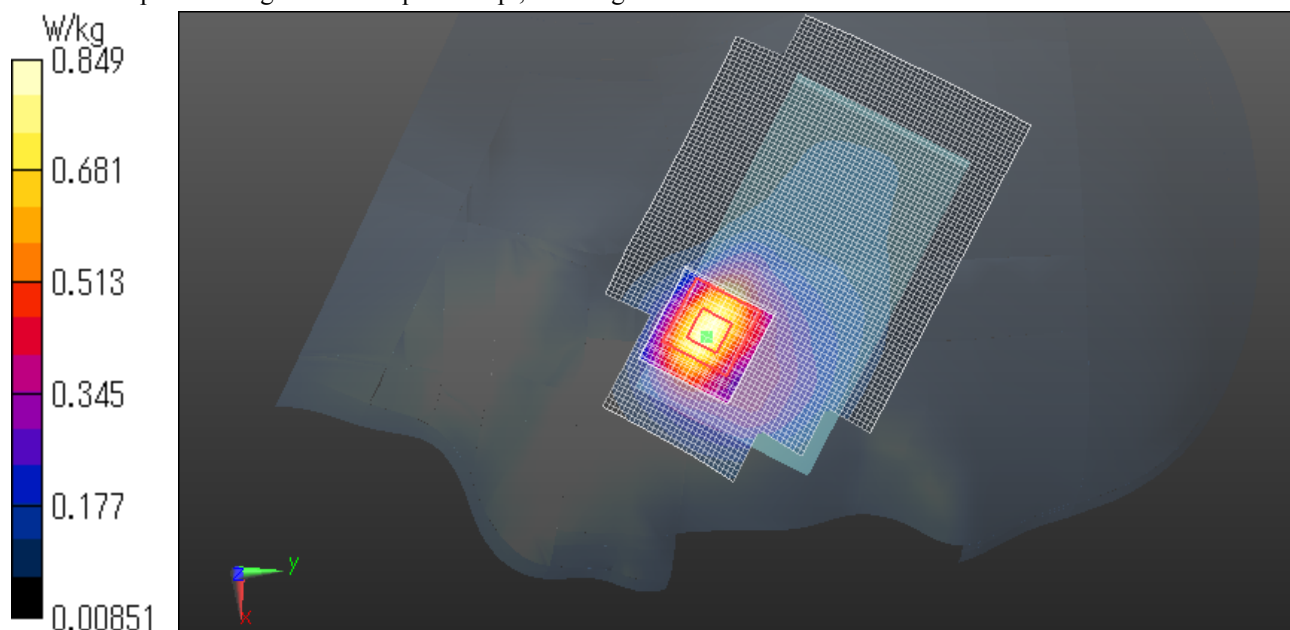
Peak SAR (extrapolated) = 1.05 W/kg

SAR(1 g) = 0.608 W/kg; SAR(10 g) = 0.309 W/kg

Maximum value of SAR (measured) = 0.849 W/kg

Date: 2013/01/23

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



GT-S5303B PCS1900 GSM Left tilt 1880.0MHz

Communication System: PCS1900; Communication System Band: PCS1900; Frequency: 1880 MHz; Duty Cycle: 1:8.30042

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.441$ mho/m; $\epsilon_r = 38.671$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(7.93, 7.93, 7.93); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: SAM with CRP; Type: SAM;

Measurement SW: DASY52, Version 52.8 (3);

Area Scan (61x91x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.186 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 9.043 V/m; Power Drift = 0.13 dB

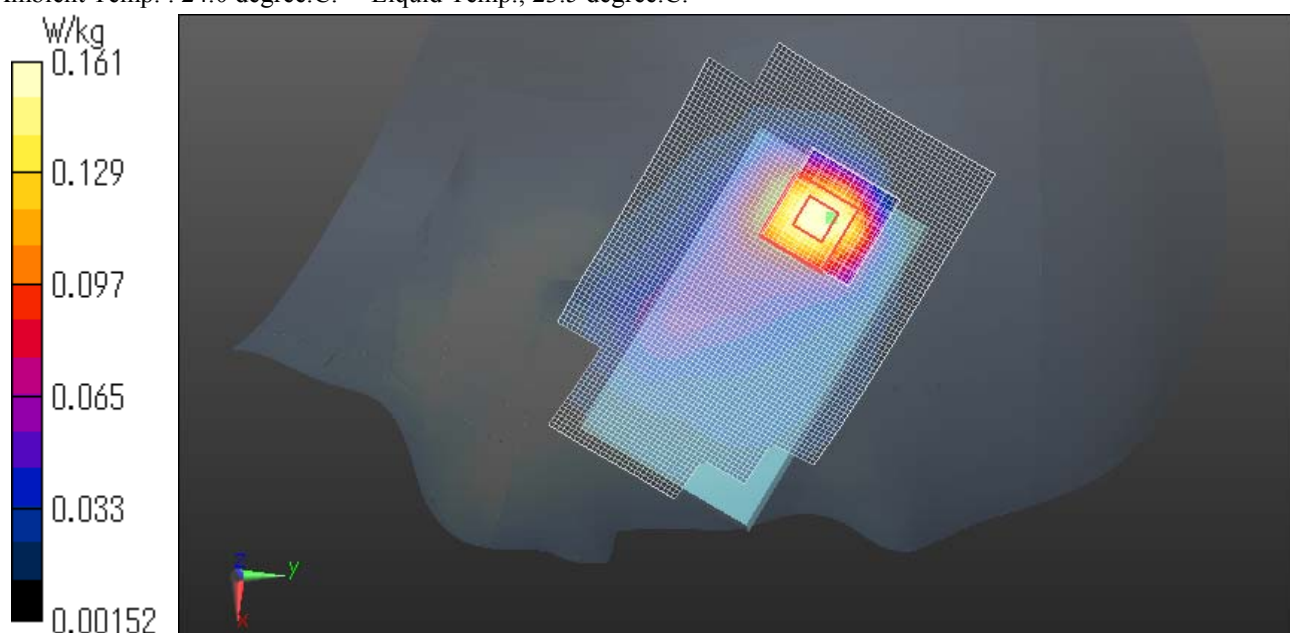
Peak SAR (extrapolated) = 0.211 W/kg

SAR(1 g) = 0.119 W/kg; SAR(10 g) = 0.066 W/kg

Maximum value of SAR (measured) = 0.161 W/kg

Date: 2013/01/23

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

GT-S5303B PCS1900 GSM Right cheek 1880.0MHz

Communication System: PCS1900; Communication System Band: PCS1900; Frequency: 1880 MHz; Duty Cycle: 1:8.30042

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.441$ mho/m; $\epsilon_r = 38.671$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(7.93, 7.93, 7.93); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: SAM with CRP; Type: SAM;

Measurement SW: DASY52, Version 52.8 (3);

Area Scan (61x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.633 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.067 V/m; Power Drift = 0.20 dB

Peak SAR (extrapolated) = 0.799 W/kg

SAR(1 g) = 0.471 W/kg; SAR(10 g) = 0.254 W/kg

Maximum value of SAR (measured) = 0.639 W/kg

Zoom Scan 2 (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.067 V/m; Power Drift = 0.20 dB

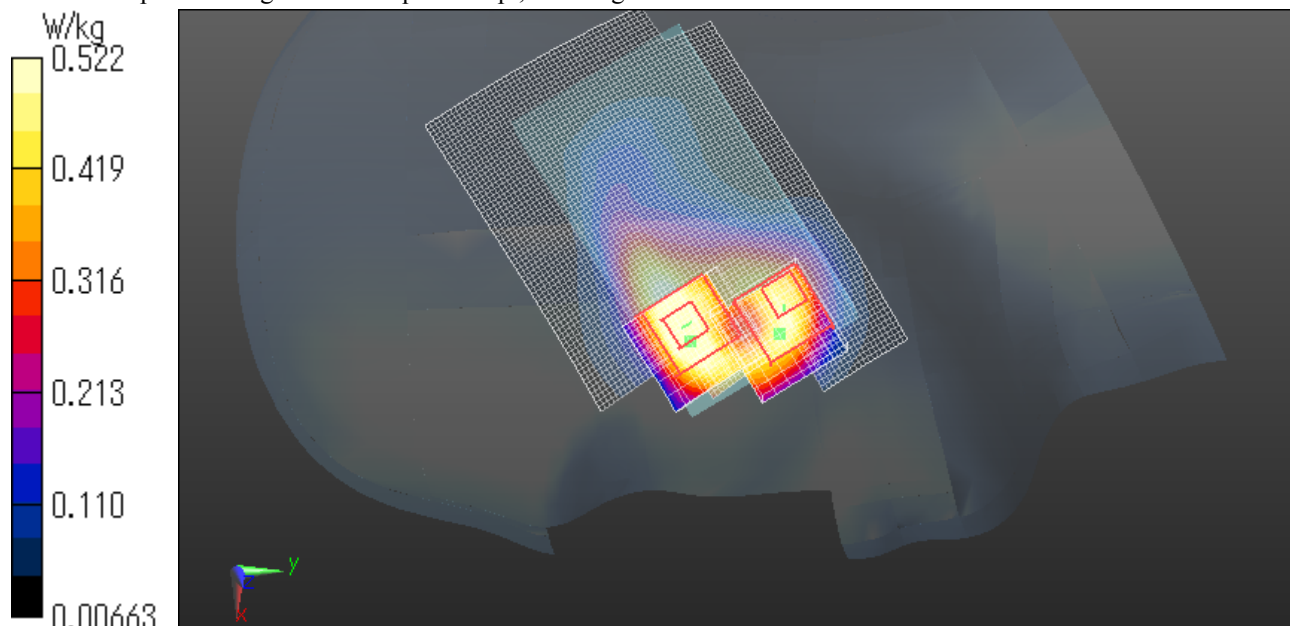
Peak SAR (extrapolated) = 0.673 W/kg

SAR(1 g) = 0.376 W/kg; SAR(10 g) = 0.193 W/kg

Maximum value of SAR (measured) = 0.522 W/kg

Date: 2013/01/23

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

GT-S5303B PCS1900 GSM Right tilt 1880.0MHz

Communication System: PCS1900; Communication System Band: PCS1900; Frequency: 1880 MHz; Duty Cycle: 1:8.30042

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.441$ mho/m; $\epsilon_r = 38.671$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(7.93, 7.93, 7.93); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: SAM with CRP; Type: SAM;

Measurement SW: DASY52, Version 52.8 (3);

Area Scan (61x91x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.193 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 9.868 V/m; Power Drift = 0.15 dB

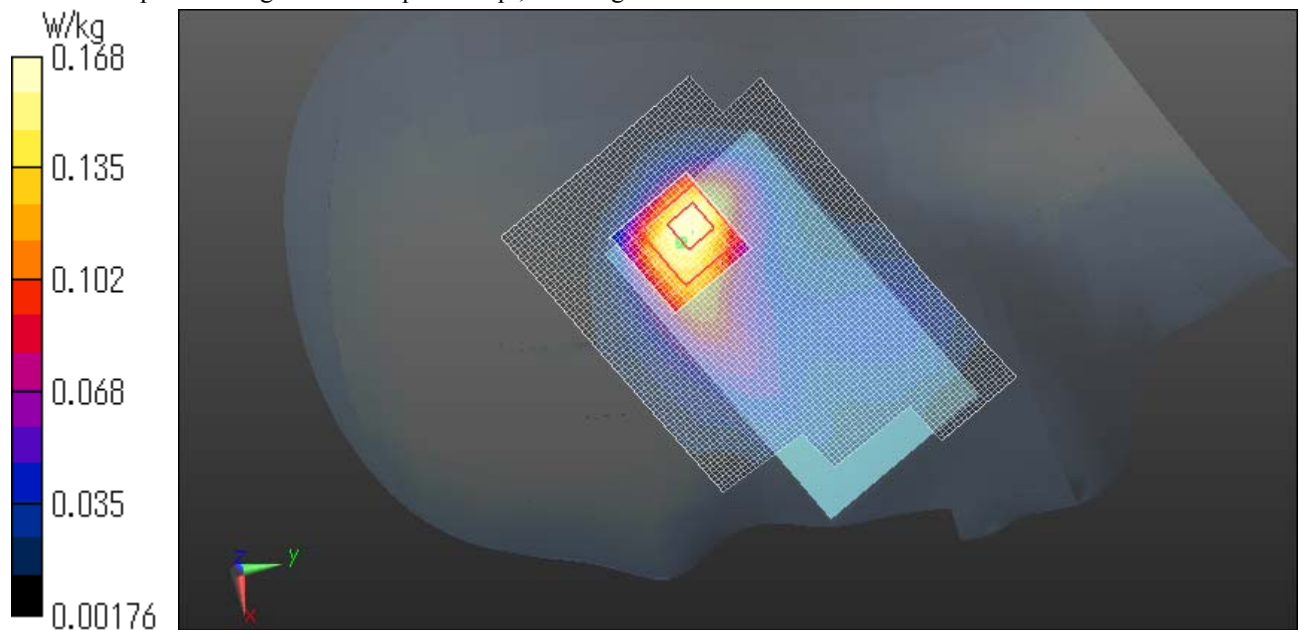
Peak SAR (extrapolated) = 0.209 W/kg

SAR(1 g) = 0.127 W/kg; SAR(10 g) = 0.073 W/kg

Maximum value of SAR (measured) = 0.168 W/kg

Date: 2013/01/23

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

GT-S5303B PCS1900 GPRS 4slots Left cheek 1880.0MHz

Communication System: PCS1900; Communication System Band: PCS1900; Frequency: 1880 MHz; Duty Cycle: 1:2.09991

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.441$ mho/m; $\epsilon_r = 38.671$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(7.93, 7.93, 7.93); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: SAM with CRP; Type: SAM;

Measurement SW: DASY52, Version 52.8 (3);

Area Scan (61x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.19 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.635 V/m; Power Drift = 0.10 dB

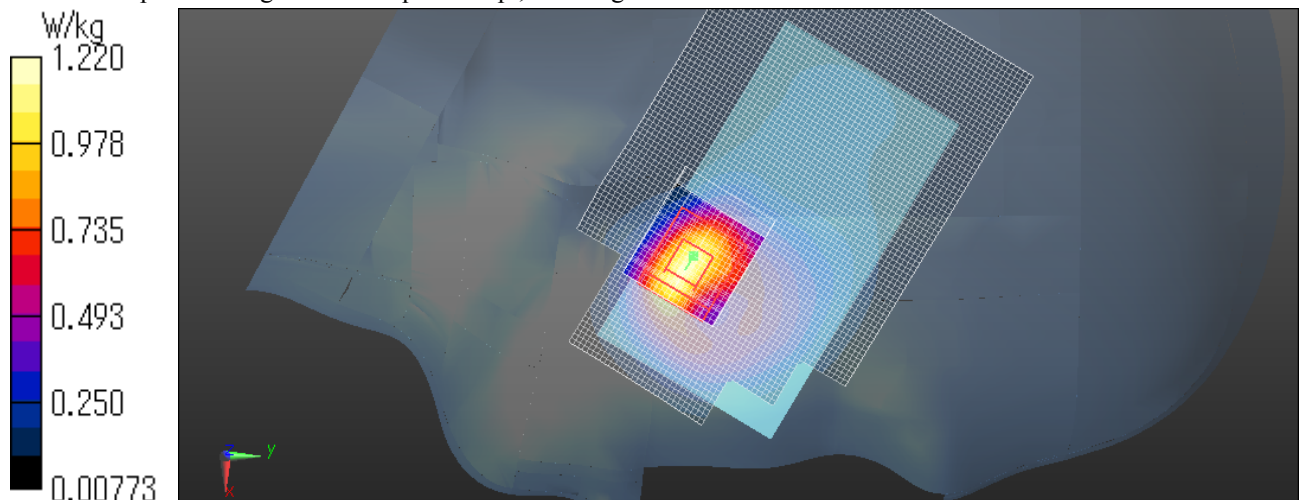
Peak SAR (extrapolated) = 1.52 W/kg

SAR(1 g) = 0.868 W/kg; SAR(10 g) = 0.440 W/kg

Maximum value of SAR (measured) = 1.22 W/kg

Date: 2013/01/23

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

GT-S5303B PCS1900 GPRS 4slots Left cheek 1850.2MHz

Communication System: PCS1900; Communication System Band: PCS1900; Frequency: 1850.2 MHz; Duty Cycle: 1:2.09991

Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.411$ mho/m; $\epsilon_r = 38.763$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(7.93, 7.93, 7.93); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: SAM with CRP; Type: SAM;

Measurement SW: DASY52, Version 52.8 (3);

Area Scan (61x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 1.25 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.493 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 1.62 W/kg

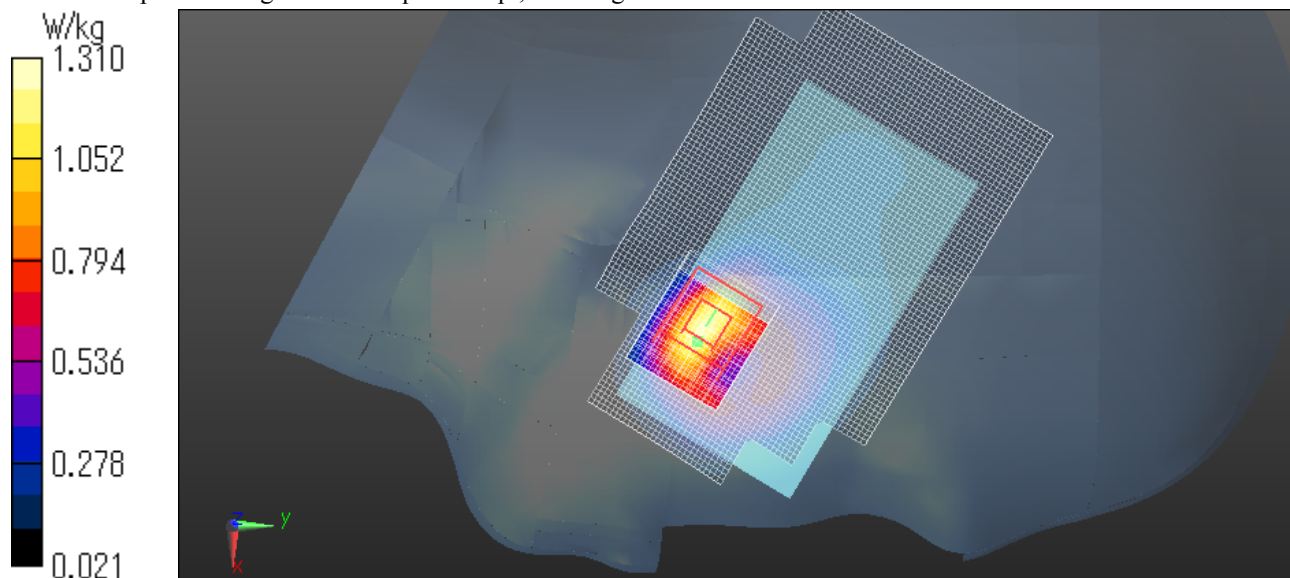
SAR(1 g) = 0.943 W/kg; SAR(10 g) = 0.480 W/kg

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 1.31 W/kg

Date: 2013/01/23

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



GT-S5303B PCS1900 GPRS 4slots Left cheek 1909.8MHz

Communication System: PCS1900; Communication System Band: PCS1900; Frequency: 1909.8 MHz; Duty Cycle: 1:2.09991

Medium parameters used: $f = 1910$ MHz; $\sigma = 1.473$ mho/m; $\epsilon_r = 38.563$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(7.93, 7.93, 7.93); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: SAM with CRP; Type: SAM;

Measurement SW: DASY52, Version 52.8 (3);

Area Scan (61x91x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 1.30 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 9.758 V/m; Power Drift = 0.02 dB

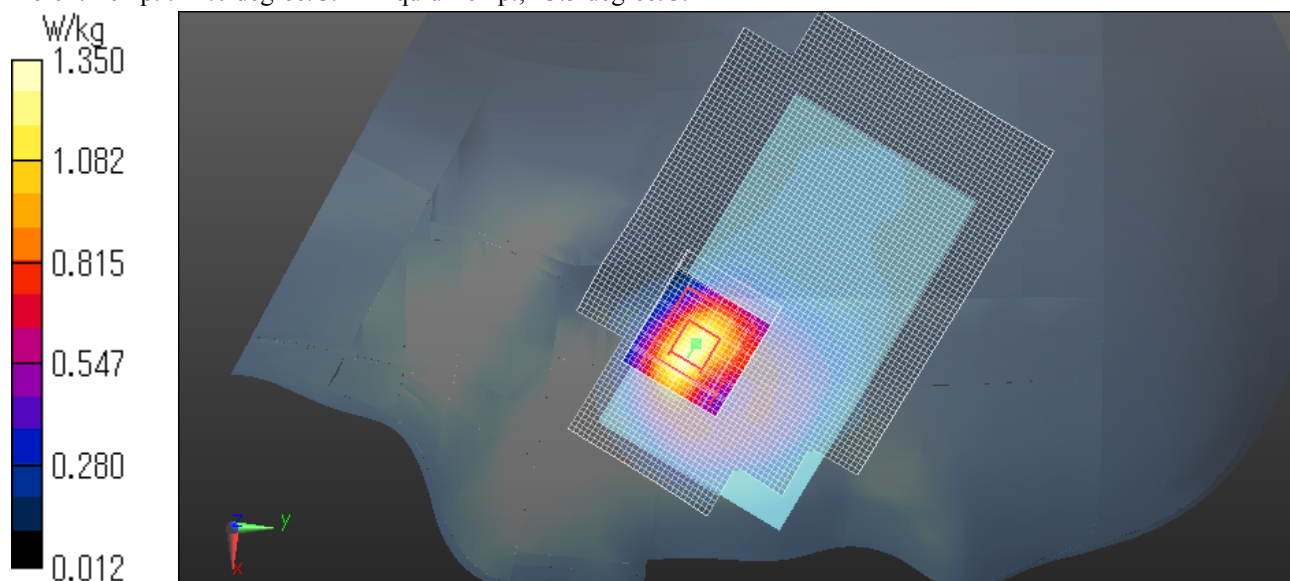
Peak SAR (extrapolated) = 1.69 W/kg

SAR(1 g) = 0.978 W/kg; SAR(10 g) = 0.497 W/kg

Maximum value of SAR (measured) = 1.35 W/kg

Date: 2013/01/23

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

Z Scan at Maximum Head SAR position in PCS1900 band

GT-S5303B PCS1900 GPRS 4slots Left cheek 1909.8MHz

Communication System: PCS1900; Communication System Band: PCS1900; Frequency: 1909.8 MHz; Duty Cycle: 1:2.09991

Medium parameters used: $f = 1910$ MHz; $\sigma = 1.473$ mho/m; $\epsilon_r = 38.563$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(7.93, 7.93, 7.93); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: SAM with CRP; Type: SAM;

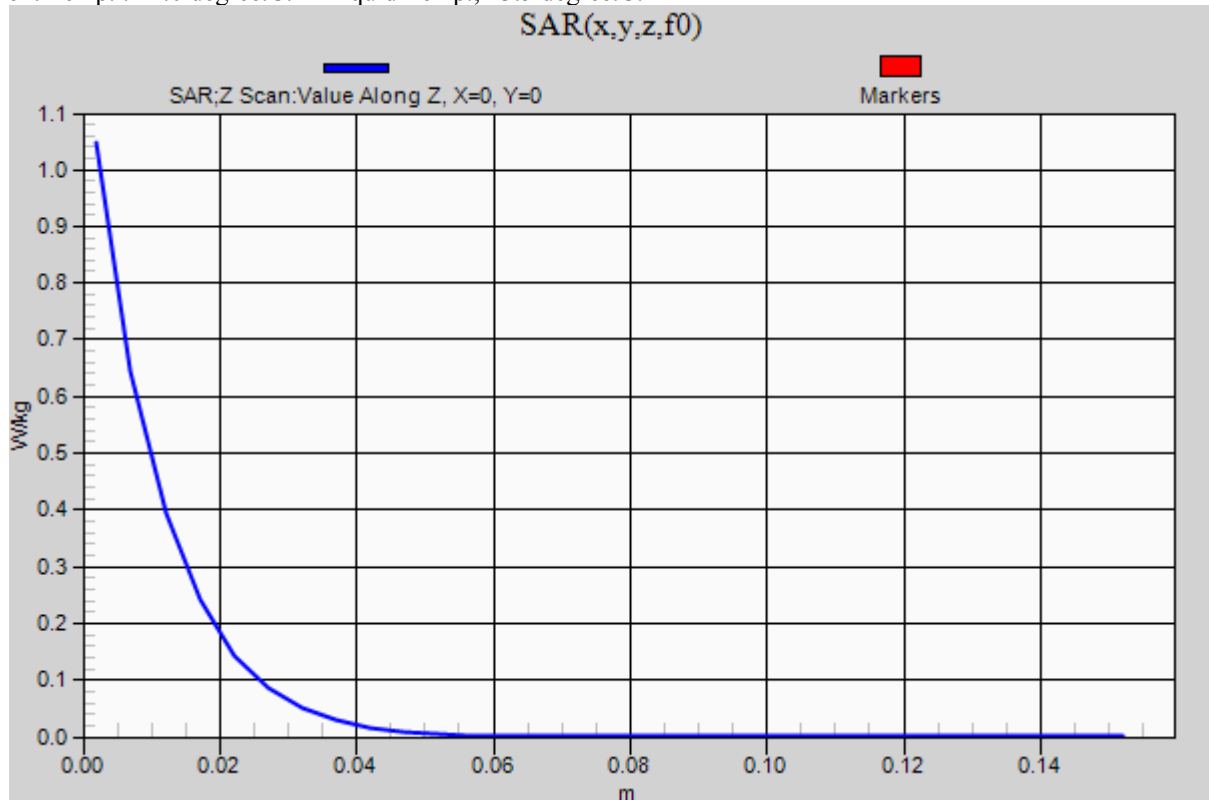
Measurement SW: DASY52, Version 52.8 (3);

Z Scan (1x1x31): Measurement grid: dx=20mm, dy=20mm, dz=5mm

Maximum value of SAR (measured) = 1.05 W/kg

Date: 2013/01/23

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

GT-S5303B PCS1900 GPRS 4slots Left cheek 1909.8MHz Repeated

Communication System: PCS1900; Communication System Band: PCS1900; Frequency: 1909.8 MHz; Duty Cycle: 1:2.09991

Medium parameters used: $f = 1910$ MHz; $\sigma = 1.473$ mho/m; $\epsilon_r = 38.563$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(7.93, 7.93, 7.93); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: SAM with CRP; Type: SAM;

Measurement SW: DASY52, Version 52.8 (3);

Area Scan 2 (61x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.28 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.259 V/m; Power Drift = -0.14 dB

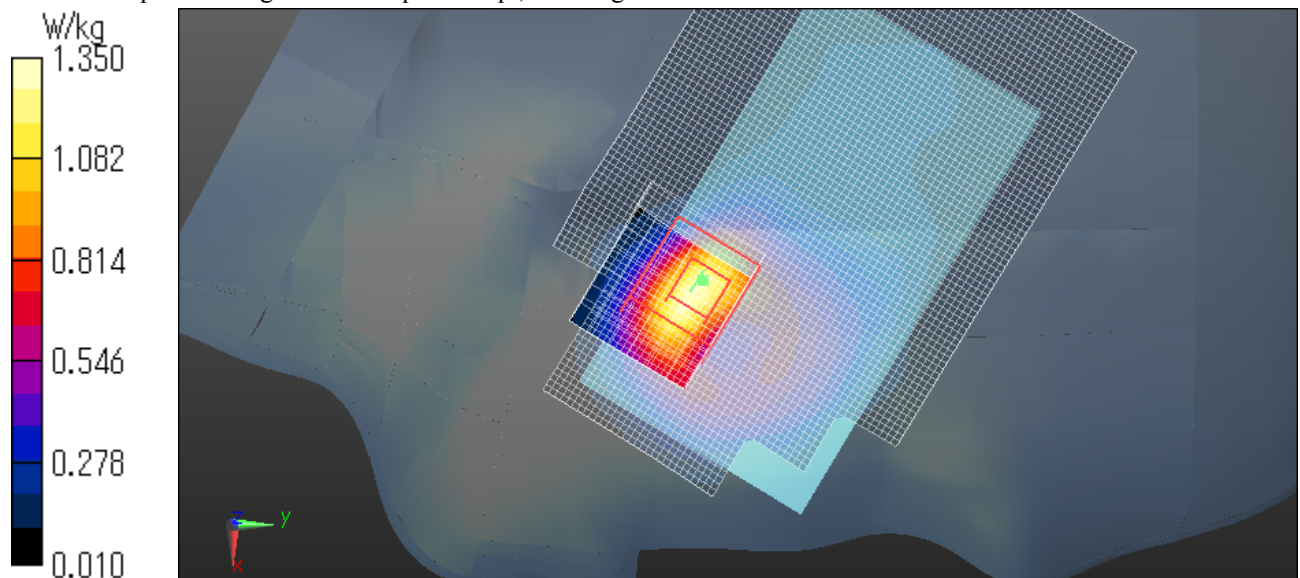
Peak SAR (extrapolated) = 1.69 W/kg

SAR(1 g) = 0.976 W/kg; SAR(10 g) = 0.491 W/kg

Maximum value of SAR (measured) = 1.35 W/kg

Date: 2013/01/23

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

iv) PCS1900 Body

GT-S5303B PCS1900 GPRS 4slots Front 10mm 1880.0MHz

Communication System: PCS1900; Communication System Band: PCS1900; Frequency: 1880 MHz; Duty Cycle: 1:2.09991

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.587$ mho/m; $\epsilon_r = 52.117$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(7.59, 7.59, 7.59); Calibrated: 2012/12/10; {Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx

Measurement SW: DASY52, Version 52.8 (3);

Area Scan (61x81x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.518 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 6.218 V/m; Power Drift = -0.12 dB

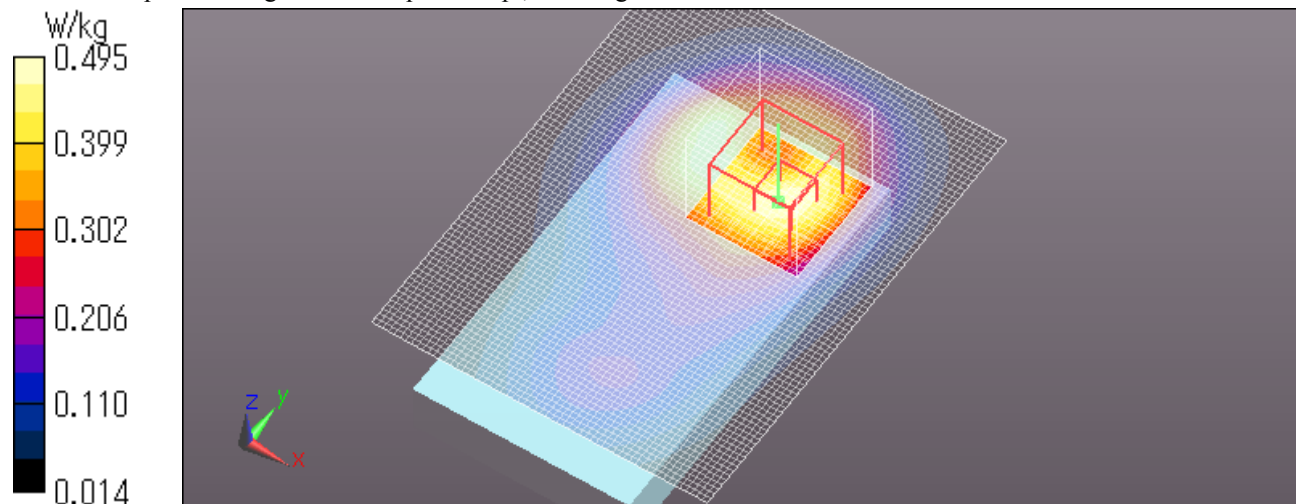
Peak SAR (extrapolated) = 0.629 W/kg

SAR(1 g) = 0.361 W/kg; SAR(10 g) = 0.207 W/kg

Maximum value of SAR (measured) = 0.495 W/kg

Date: 2013/01/25

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



Z Scan at Maximum Body SAR position in PCS1900 band

GT-S5303B PCS1900 GPRS 4slots Front 10mm 1880.0MHz

Communication System: PCS1900; Communication System Band: PCS1900; Frequency: 1880 MHz; Duty Cycle: 1:2.09991

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.587$ mho/m; $\epsilon_r = 52.117$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(7.59, 7.59, 7.59); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx

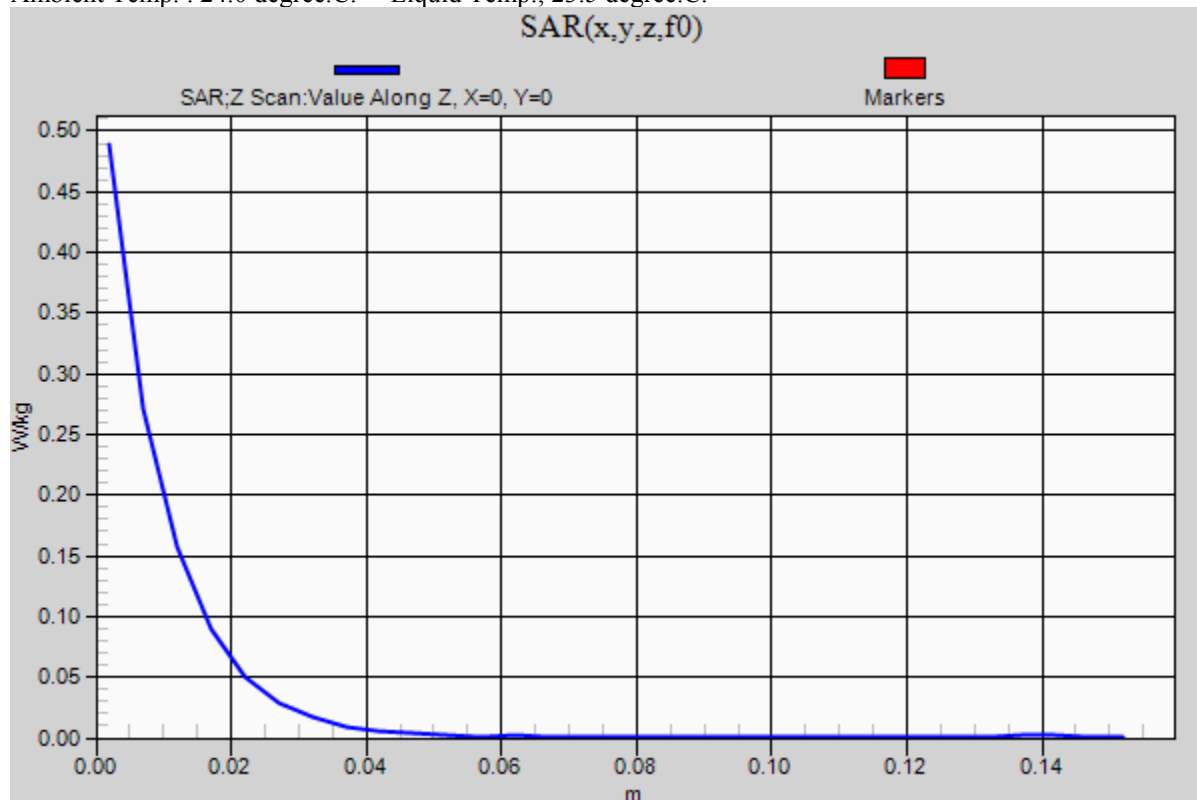
Measurement SW: DASY52, Version 52.8 (3);

Z Scan (1x1x31): Measurement grid: dx=20mm, dy=20mm, dz=5mm

Maximum value of SAR (measured) = 0.489 W/kg

Date: 2013/01/25

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

GT-S5303B PCS1900 GPRS 4slots Rear 10mm 1880.0MHz

Communication System: PCS1900; Communication System Band: PCS1900; Frequency: 1880 MHz; Duty Cycle: 1:2.09991

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.587$ mho/m; $\epsilon_r = 52.117$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(7.59, 7.59, 7.59); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx

Measurement SW: DASY52, Version 52.8 (3);

Area Scan (61x81x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.437 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 1.862 V/m; Power Drift = -0.11 dB

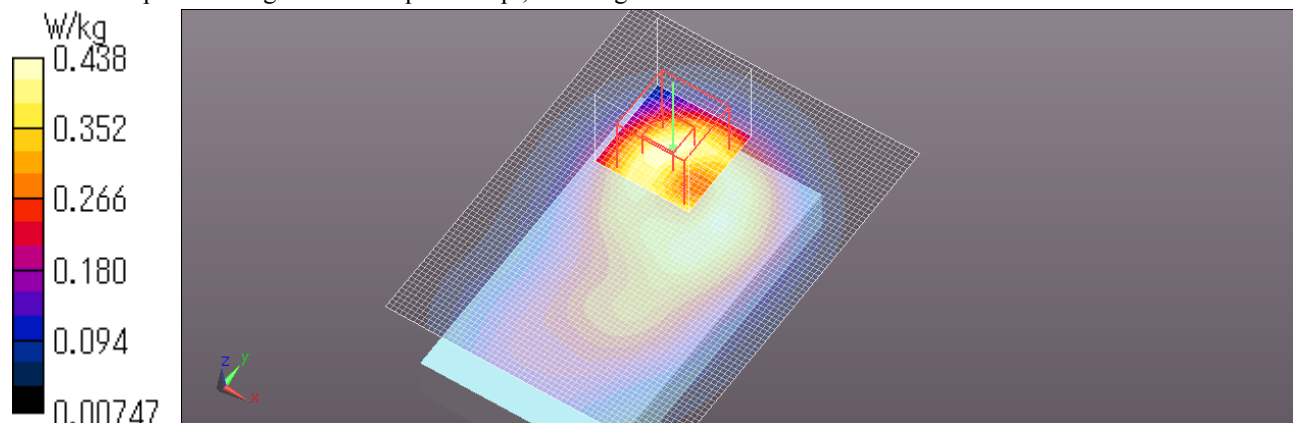
Peak SAR (extrapolated) = 0.544 W/kg

SAR(1 g) = 0.318 W/kg; SAR(10 g) = 0.182 W/kg

Maximum value of SAR (measured) = 0.438 W/kg

Date: 2013/01/25

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



GT-S5303B PCS1900 GPRS 4slots Left edge 10mm 1880.0MHz

Communication System: PCS1900; Communication System Band: PCS1900; Frequency: 1880 MHz; Duty Cycle: 1:2.09991

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.587$ mho/m; $\epsilon_r = 52.117$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(7.59, 7.59, 7.59); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx

Measurement SW: DASY52, Version 52.8 (3);

Area Scan 2 2 (61x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.105 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 3.343 V/m; Power Drift = -0.14 dB

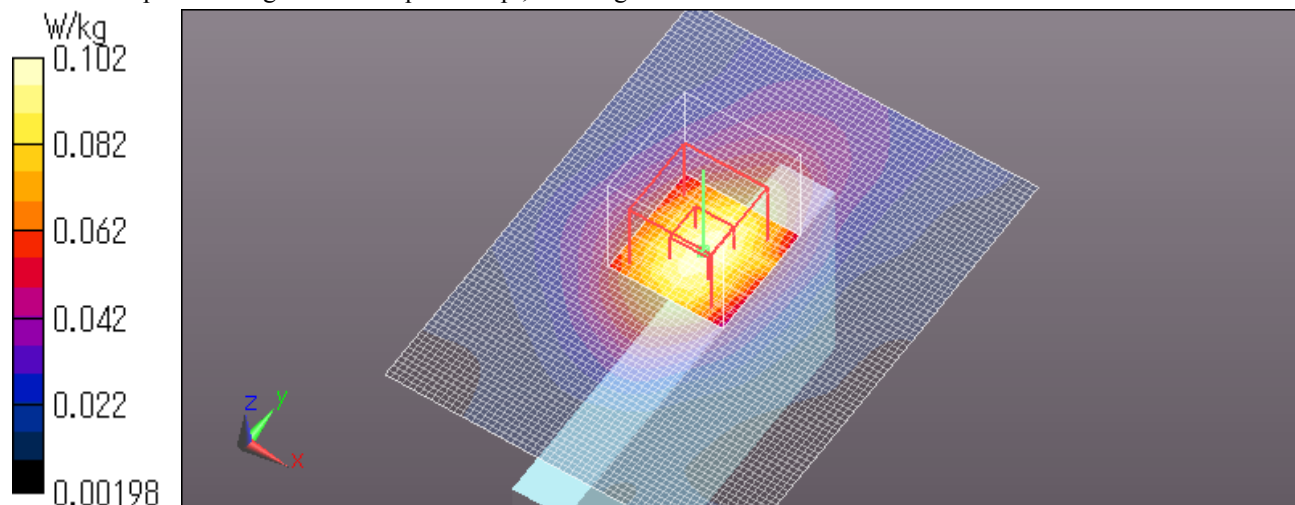
Peak SAR (extrapolated) = 0.126 W/kg

SAR(1 g) = 0.076 W/kg; SAR(10 g) = 0.045 W/kg

Maximum value of SAR (measured) = 0.102 W/kg

Date: 2013/01/25

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

GT-S5303B PCS1900 GPRS 4slots Right edge 10mm 1880.0MHz

Communication System: PCS1900; Communication System Band: PCS1900; Frequency: 1880 MHz; Duty Cycle: 1:2.09991

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.587$ mho/m; $\epsilon_r = 52.117$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(7.59, 7.59, 7.59); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx

Measurement SW: DASY52, Version 52.8 (3);

Area Scan (61x81x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.121 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 2.419 V/m; Power Drift = -0.17 dB

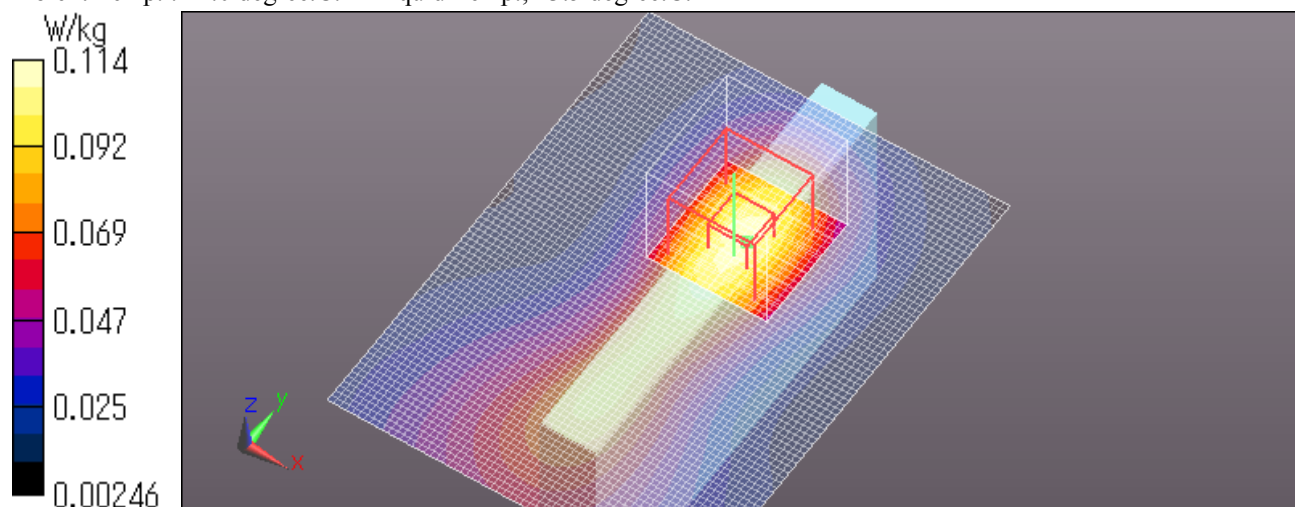
Peak SAR (extrapolated) = 0.141 W/kg

SAR(1 g) = 0.084 W/kg; SAR(10 g) = 0.049 W/kg

Maximum value of SAR (measured) = 0.114 W/kg

Date: 2013/01/25

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

GT-S5303B PCS1900 GPRS 4slots Bottom edge 10mm 1880.0MHz

Communication System: PCS1900; Communication System Band: PCS1900; Frequency: 1880 MHz; Duty Cycle: 1:2.09991

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.587$ mho/m; $\epsilon_r = 52.117$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(7.59, 7.59, 7.59); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx

Measurement SW: DASY52, Version 52.8 (3);

Area Scan 2 (61x101x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.309 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 2.953 V/m; Power Drift = -0.16 dB

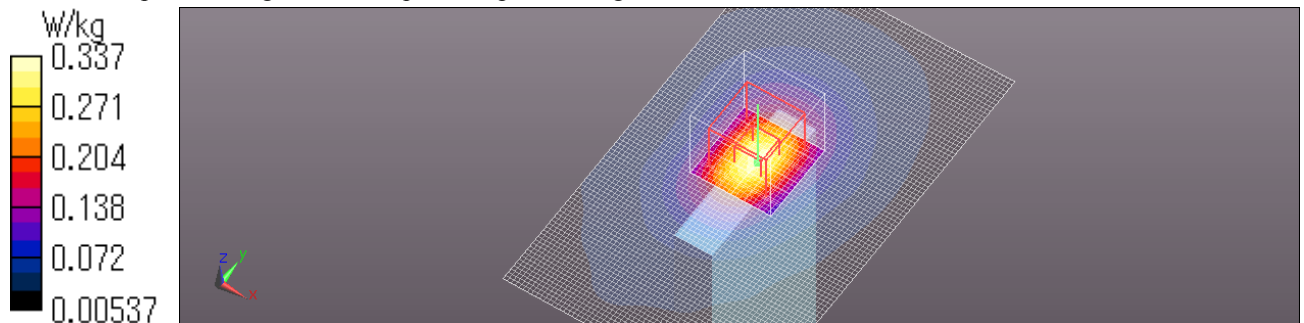
Peak SAR (extrapolated) = 0.417 W/kg

SAR(1 g) = 0.245 W/kg; SAR(10 g) = 0.133 W/kg

Maximum value of SAR (measured) = 0.337 W/kg

Date: 2013/01/25

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



GT-S5303B PCS1900 GSM Front 10mm 1880.0MHz

Communication System: PCS1900; Communication System Band: PCS1900; Frequency: 1880 MHz; Duty Cycle: 1:8.30042

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.587$ mho/m; $\epsilon_r = 52.117$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(7.59, 7.59, 7.59); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx

Measurement SW: DASY52, Version 52.8 (3);

Area Scan (61x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.423 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 1.502 V/m; Power Drift = -0.17 dB

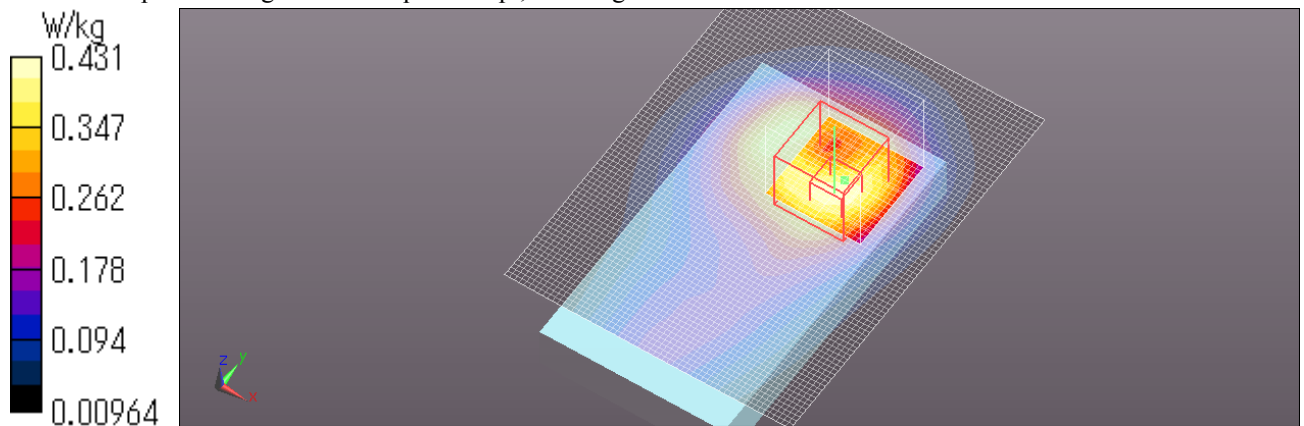
Peak SAR (extrapolated) = 0.547 W/kg

SAR(1 g) = 0.311 W/kg; SAR(10 g) = 0.177 W/kg

Maximum value of SAR (measured) = 0.431 W/kg

Date: 2013/01/25

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



v) WCDMA V Head

GT-S5303B WCDMA V 12.2k RMC Left cheek 836.6MHz

Communication System: WCDMA V 835M; Communication System Band: WCDMA V band; Frequency: 836.6 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.879$ mho/m; $\epsilon_r = 41.996$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(9.5, 9.5, 9.5); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: SAM with CRP; Type: SAM;

Measurement SW: DASY52, Version 52.8 (3);

Area Scan (61x91x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.403 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 6.397 V/m; Power Drift = -0.11 dB

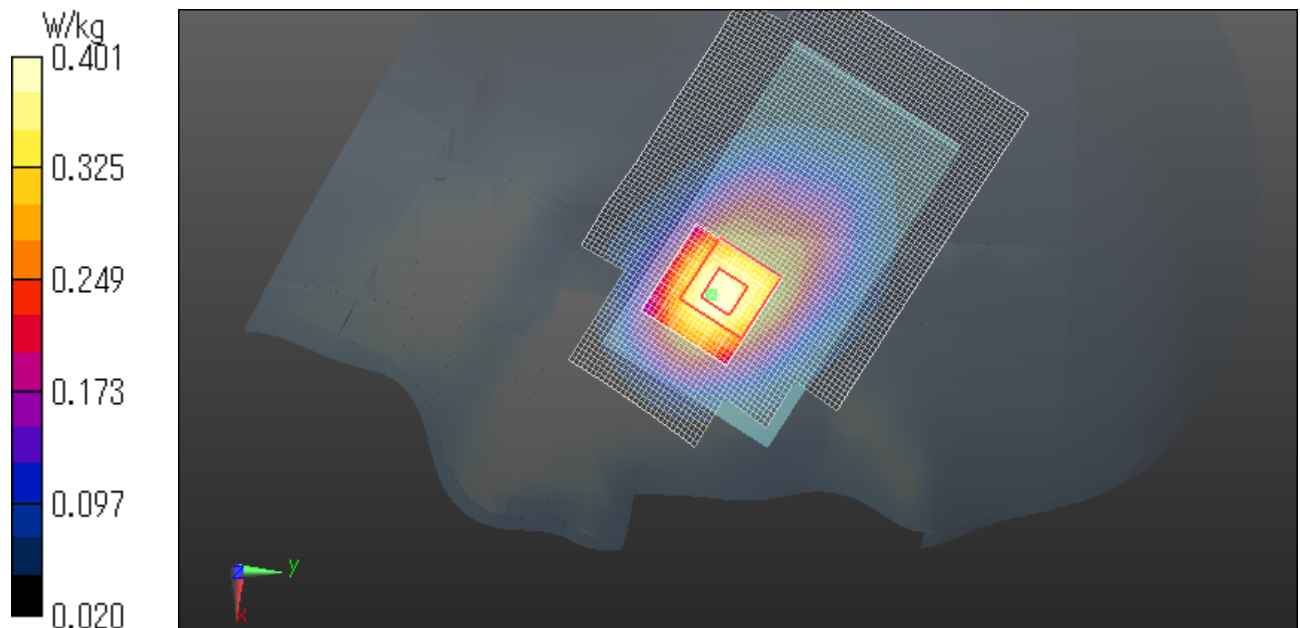
Peak SAR (extrapolated) = 0.482 W/kg

SAR(1 g) = 0.320 W/kg; SAR(10 g) = 0.216 W/kg

Maximum value of SAR (measured) = 0.401 W/kg

Date: 2013/01/21

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



Z Scan at Maximum Head SAR position in WCDMA V band

GT-S5303B WCDMA V 12.2k RMC Left cheek 836.6MHz

Communication System: WCDMA V 835M; Communication System Band: WCDMA V band; Frequency: 836.6 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.879$ mho/m; $\epsilon_r = 41.996$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(9.5, 9.5, 9.5); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: SAM with CRP; Type: SAM;

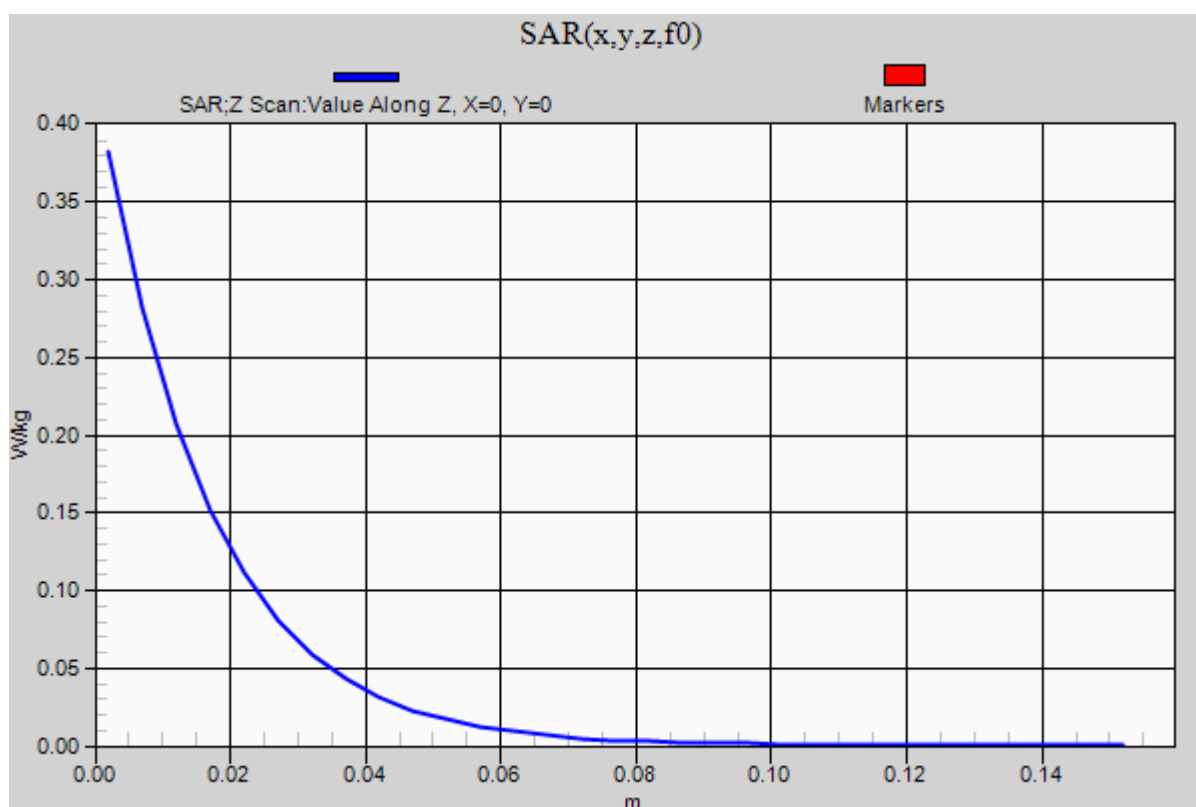
Measurement SW: DASY52, Version 52.8 (3);

Z Scan (1x1x31): Measurement grid: dx=20mm, dy=20mm, dz=5mm

Maximum value of SAR (measured) = 0.383 W/kg

Date: 2013/01/21

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

GT-S5303B WCDMA V 12.2k RMC Left tilt 836.6MHz

Communication System: WCDMA V 835M; Communication System Band: WCDMA V band; Frequency: 836.6 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.879$ mho/m; $\epsilon_r = 41.996$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(9.5, 9.5, 9.5); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: SAM with CRP; Type: SAM;

Measurement SW: DASY52, Version 52.8 (3);

Area Scan (61x91x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.144 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 8.092 V/m; Power Drift = 0.12 dB

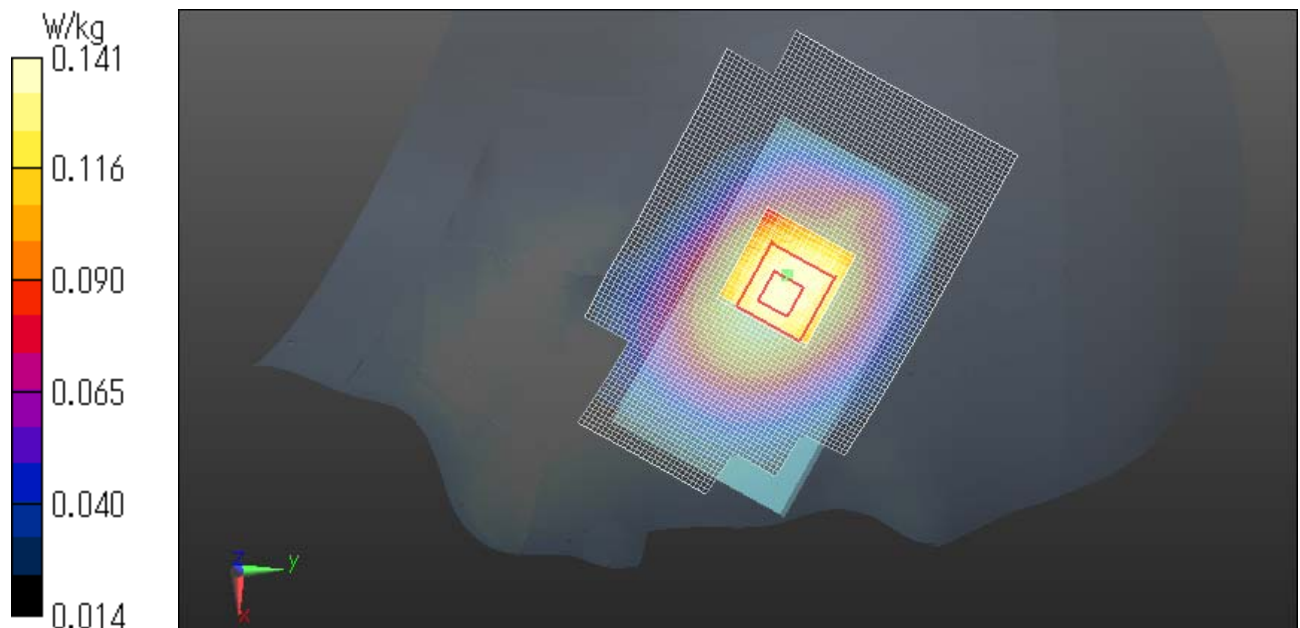
Peak SAR (extrapolated) = 0.155 W/kg

SAR(1 g) = 0.122 W/kg; SAR(10 g) = 0.092 W/kg

Maximum value of SAR (measured) = 0.141 W/kg

Date: 2013/01/21

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

GT-S5303B WCDMA V 12.2k RMC Right cheek 836.6MHz

Communication System: WCDMA V 835M; Communication System Band: WCDMA V band; Frequency: 836.6 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.879$ mho/m; $\epsilon_r = 41.996$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(9.5, 9.5, 9.5); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: SAM with CRP; Type: SAM;

Measurement SW: DASY52, Version 52.8 (3);

Area Scan (61x91x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.351 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 6.361 V/m; Power Drift = -0.13 dB

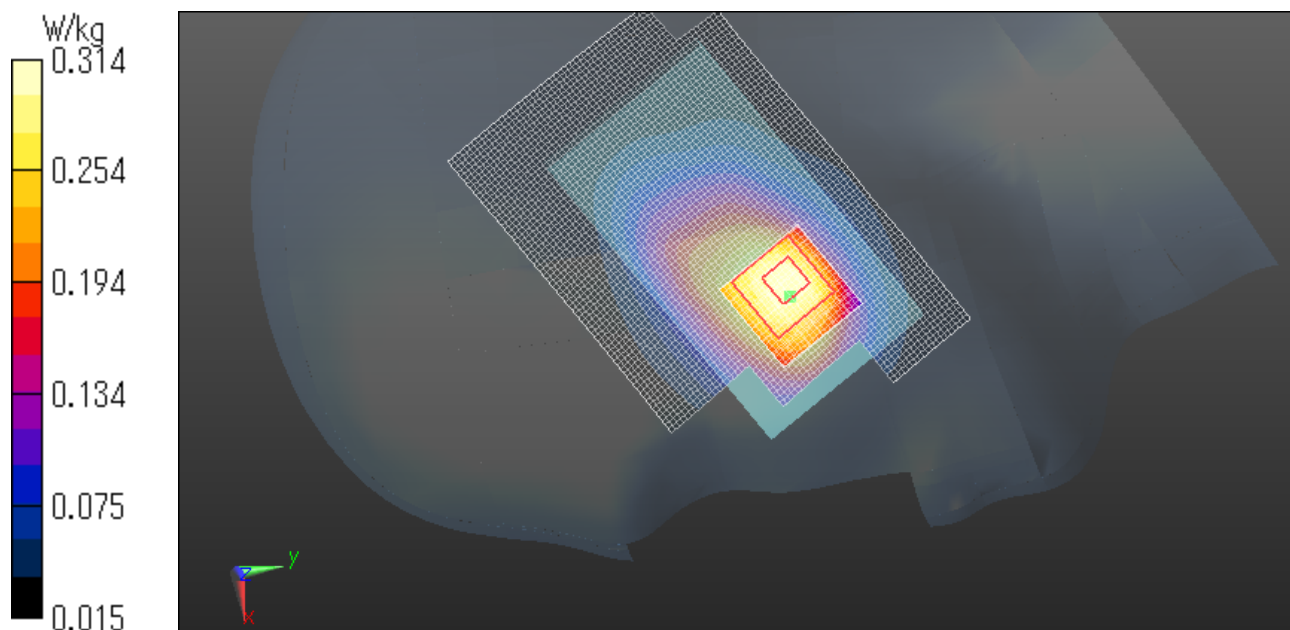
Peak SAR (extrapolated) = 0.372 W/kg

SAR(1 g) = 0.257 W/kg; SAR(10 g) = 0.172 W/kg

Maximum value of SAR (measured) = 0.314 W/kg

Date: 2013/01/21

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

GT-S5303B WCDMA V 12.2k RMC Right tilt 836.6MHz

Communication System: WCDMA V 835M; Communication System Band: WCDMA V band; Frequency: 836.6 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.879$ mho/m; $\epsilon_r = 41.996$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(9.5, 9.5, 9.5); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: SAM with CRP; Type: SAM;

Measurement SW: DASY52, Version 52.8 (3);

Area Scan (61x91x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.144 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 8.990 V/m; Power Drift = 0.10 dB

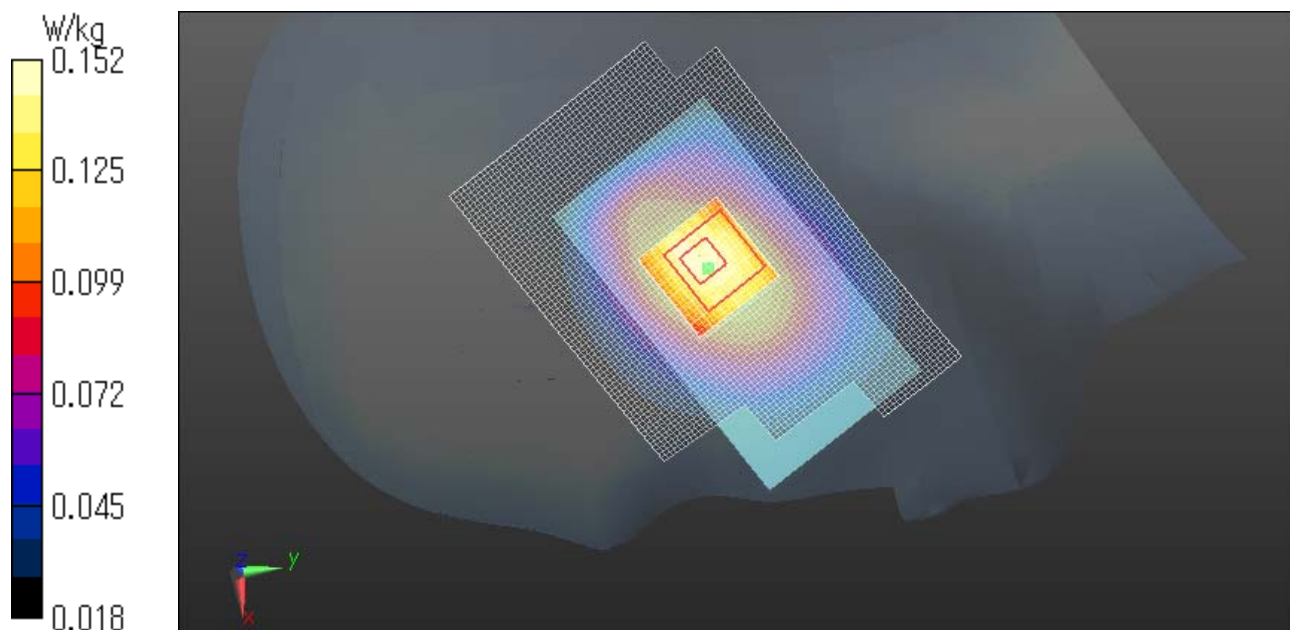
Peak SAR (extrapolated) = 0.168 W/kg

SAR(1 g) = 0.132 W/kg; SAR(10 g) = 0.097 W/kg

Maximum value of SAR (measured) = 0.152 W/kg

Date: 2013/01/21

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

vi) WCDMA V Body

GT-S5303B WCDMA V 12.2k RMC Front 10mm 836.6MHz

Communication System: WCDMA V 835M; Communication System Band: WCDMA V band; Frequency: 836.6 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.946$ mho/m; $\epsilon_r = 55.735$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(9.55, 9.55, 9.55); Calibrated: 2012/12/10; {Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx

Measurement SW: DASY52, Version 52.8 (3);

Area Scan (61x101x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.242 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 14.432 V/m; Power Drift = 0.19 dB

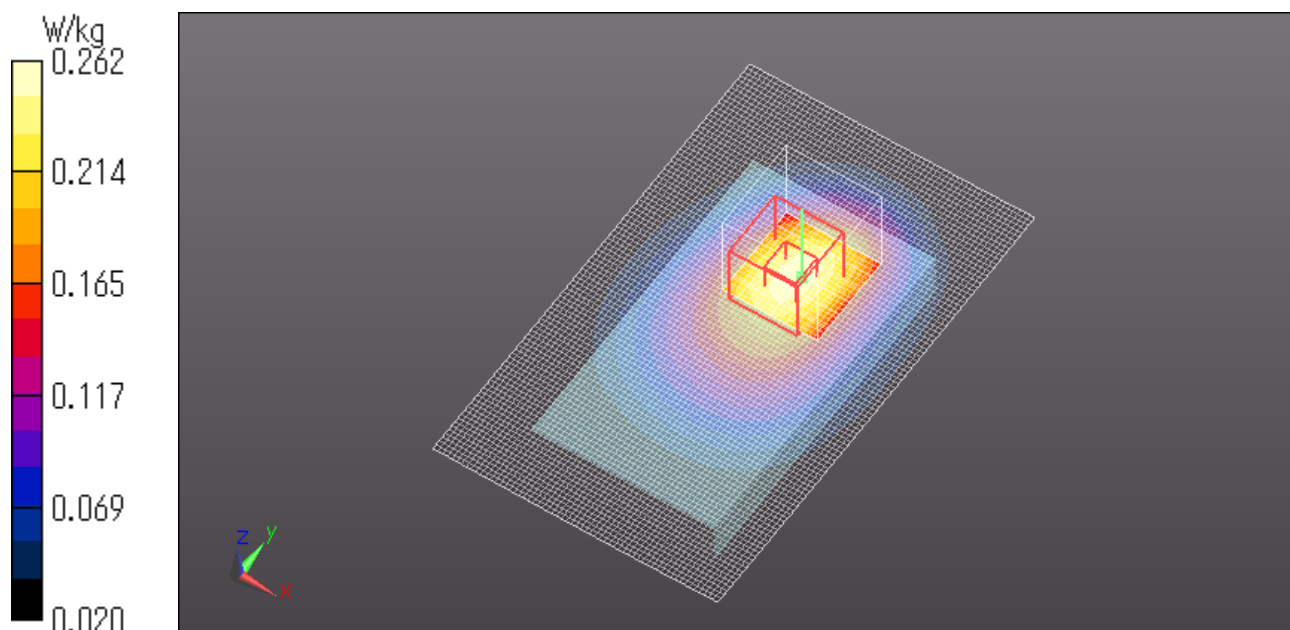
Peak SAR (extrapolated) = 0.304 W/kg

SAR(1 g) = 0.213 W/kg; SAR(10 g) = 0.149 W/kg

Maximum value of SAR (measured) = 0.262 W/kg

Date: 2013/01/22

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

GT-S5303B WCDMA V 12.2k RMC Rear 10mm 836.6MHz

Communication System: WCDMA V 835M; Communication System Band: WCDMA V band; Frequency: 836.6 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.946$ mho/m; $\epsilon_r = 55.735$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(9.55, 9.55, 9.55); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx

Measurement SW: DASY52, Version 52.8 (3);

Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.348 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 16.826 V/m; Power Drift = 0.17 dB

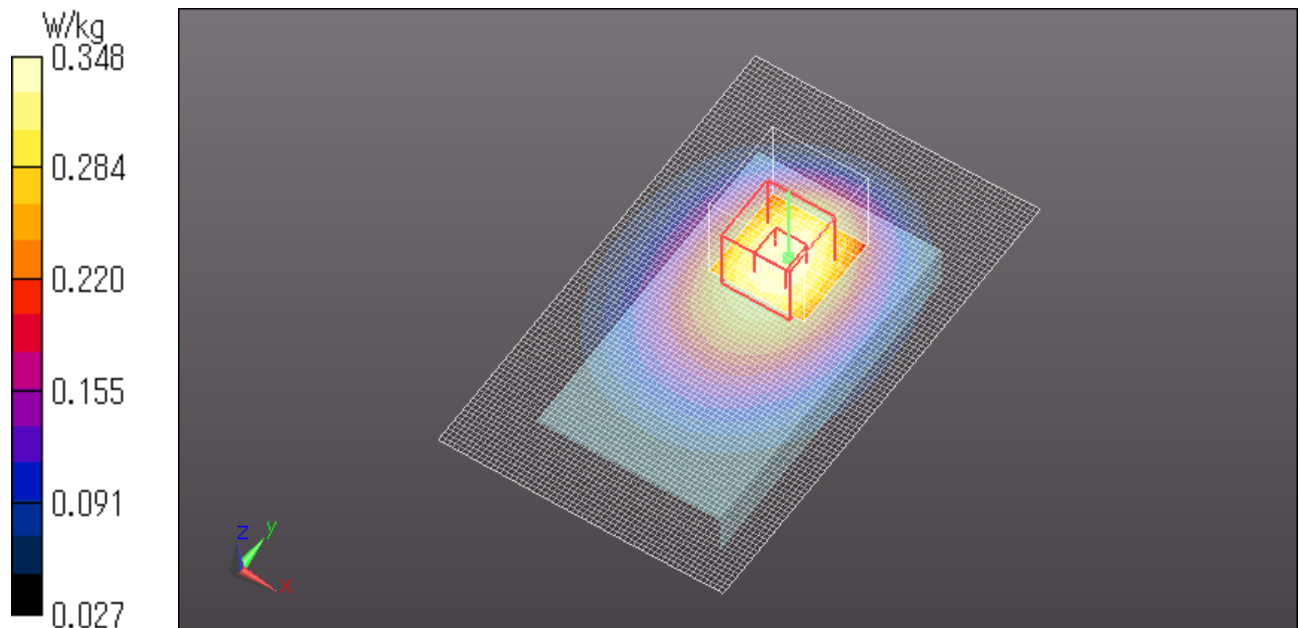
Peak SAR (extrapolated) = 0.397 W/kg

SAR(1 g) = 0.290 W/kg; SAR(10 g) = 0.207 W/kg

Maximum value of SAR (measured) = 0.348 W/kg

Date: 2013/01/22

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

Z Scan at Maximum Body SAR position in WCDMA V band

GT-S5303B WCDMA V 12.2k RMC Rear 10mm 836.6MHz

Communication System: WCDMA V 835M; Communication System Band: WCDMA V band; Frequency: 836.6 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.946$ mho/m; $\epsilon_r = 55.735$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(9.55, 9.55, 9.55); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx

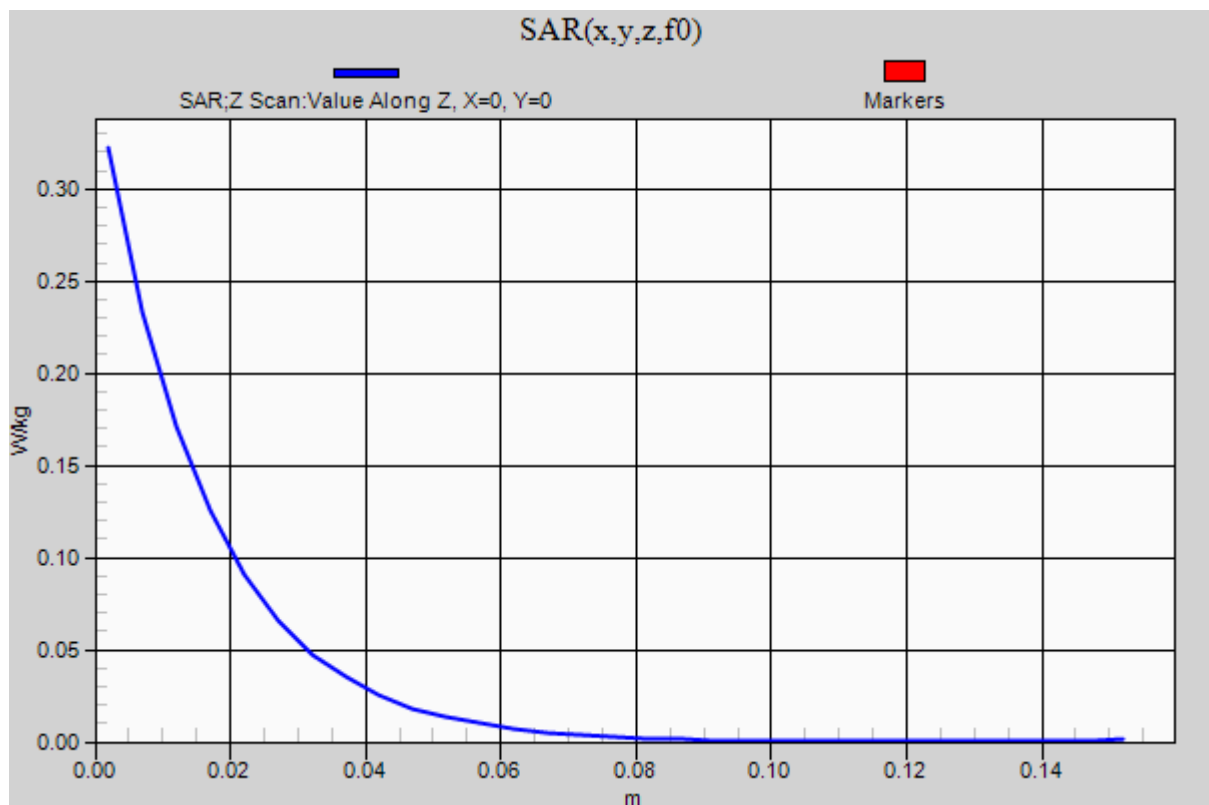
Measurement SW: DASY52, Version 52.8 (3);

Z Scan (1x1x31): Measurement grid: dx=20mm, dy=20mm, dz=5mm

Maximum value of SAR (measured) = 0.322 W/kg

Date: 2013/01/22

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

GT-S5303B WCDMA V 12.2k RMC Left edge 10mm 836.6MHz

Communication System: WCDMA V 835M; Communication System Band: WCDMA V band; Frequency: 836.6 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.946$ mho/m; $\epsilon_r = 55.735$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(9.55, 9.55, 9.55); Calibrated: 2012/12/10; {Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx

Measurement SW: DASY52, Version 52.8 (3);

Area Scan (61x101x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.108 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 10.067 V/m; Power Drift = 0.14 dB

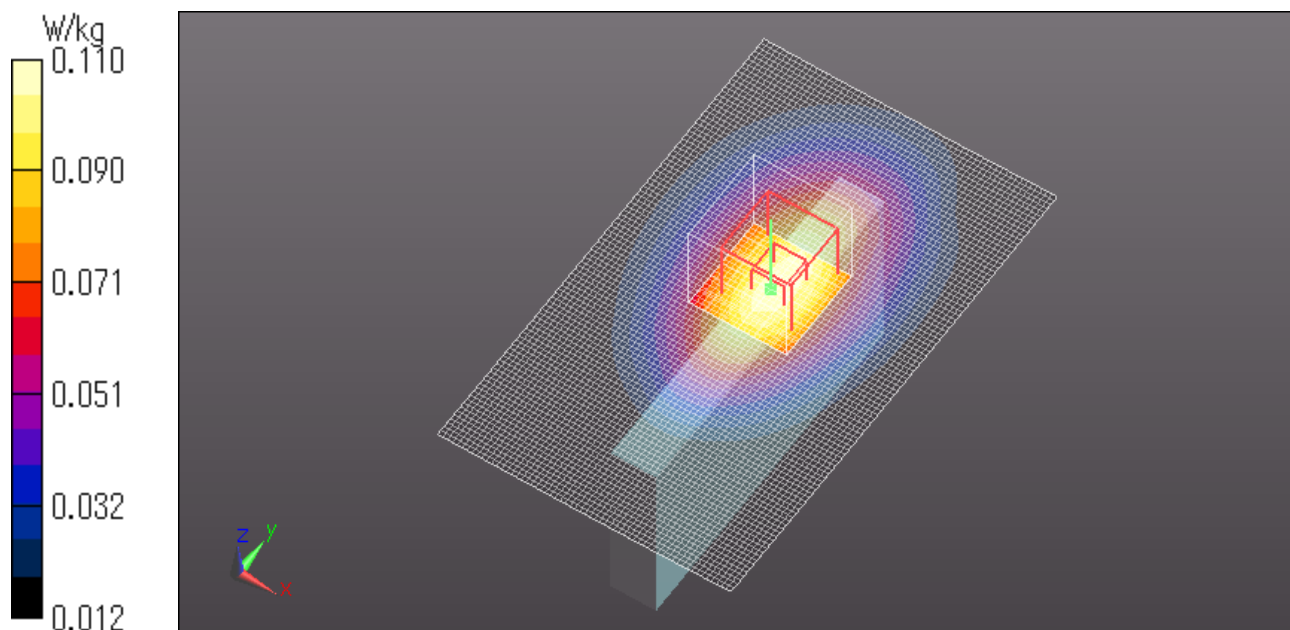
Peak SAR (extrapolated) = 0.128 W/kg

SAR(1 g) = 0.089 W/kg; SAR(10 g) = 0.062 W/kg

Maximum value of SAR (measured) = 0.110 W/kg

Date: 2013/01/22

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

GT-S5303B WCDMA V 12.2k RMC Right edge 10mm 836.6MHz

Communication System: WCDMA V 835M; Communication System Band: WCDMA V band; Frequency: 836.6 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.946$ mho/m; $\epsilon_r = 55.735$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(9.55, 9.55, 9.55); Calibrated: 2012/12/10; {Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx

Measurement SW: DASY52, Version 52.8 (3);

Area Scan (61x101x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.160 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 13.226 V/m; Power Drift = -0.08 dB

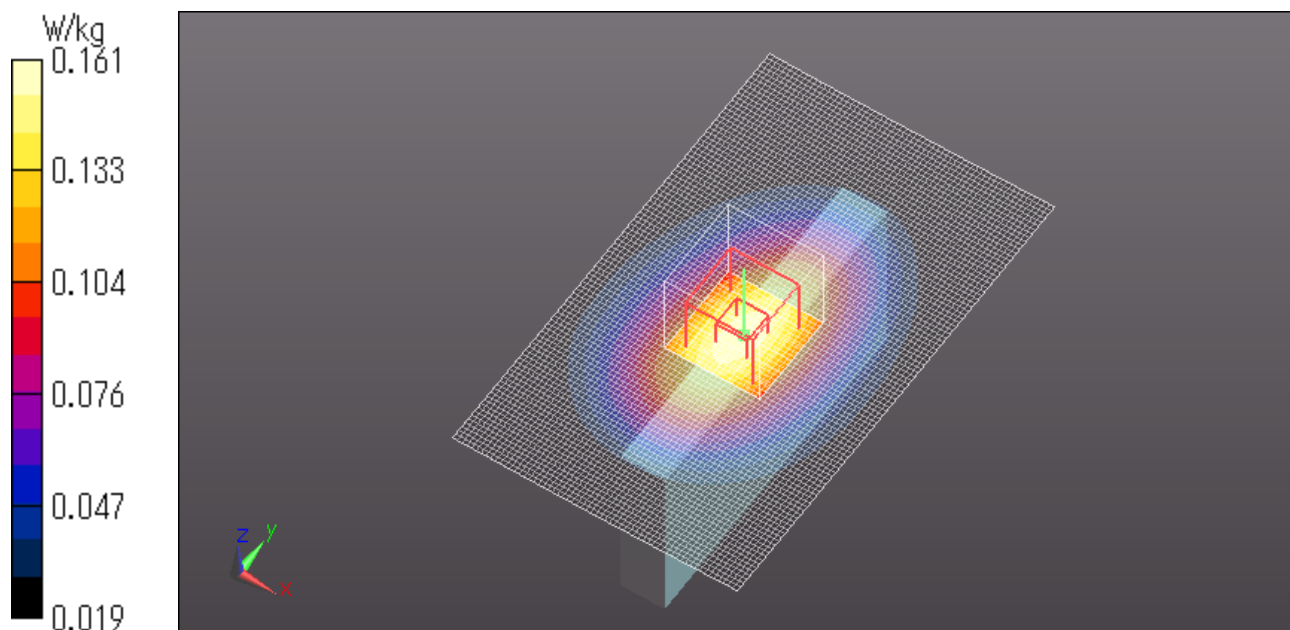
Peak SAR (extrapolated) = 0.186 W/kg

SAR(1 g) = 0.131 W/kg; SAR(10 g) = 0.091 W/kg

Maximum value of SAR (measured) = 0.161 W/kg

Date: 2013/01/22

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124

GT-S5303B WCDMA V 12.2k RMC Bottom edge 10mm 836.6MHz

Communication System: WCDMA V 835M; Communication System Band: WCDMA V band; Frequency: 836.6 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.946$ mho/m; $\epsilon_r = 55.735$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(9.55, 9.55, 9.55); Calibrated: 2012/12/10; {Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx

Measurement SW: DASY52, Version 52.8 (3);

Area Scan (61x101x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.0500 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 7.585 V/m; Power Drift = -0.10 dB

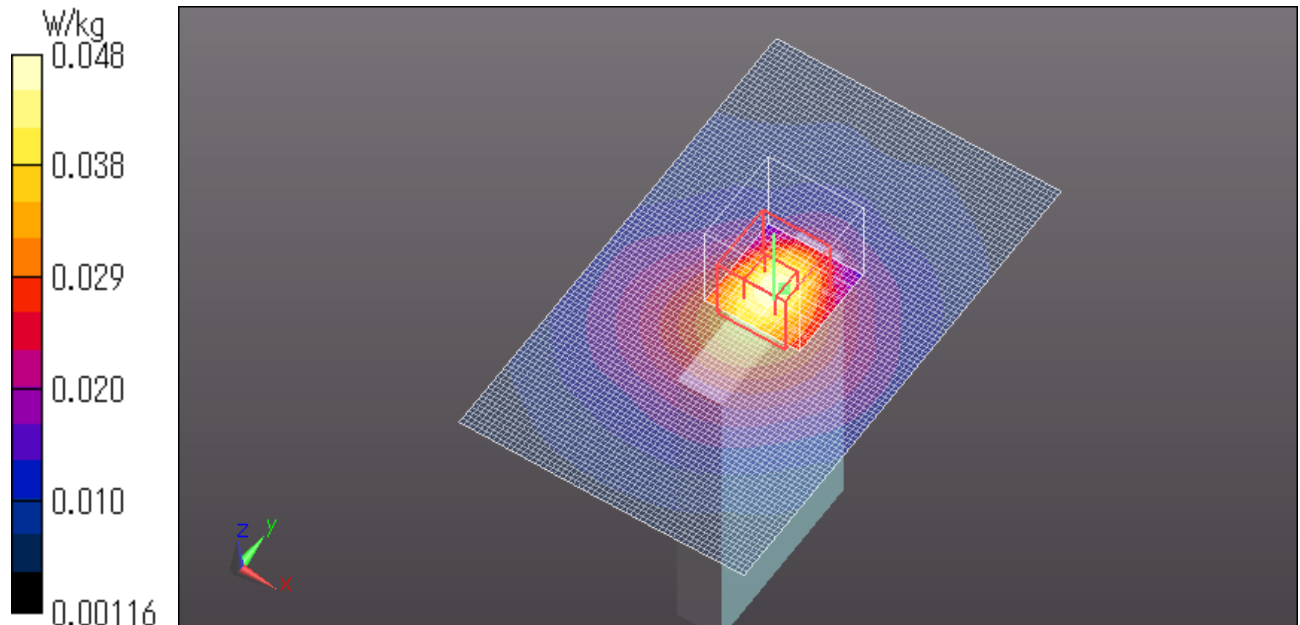
Peak SAR (extrapolated) = 0.0680 W/kg

SAR(1 g) = 0.034 W/kg; SAR(10 g) = 0.020 W/kg

Maximum value of SAR (measured) = 0.0478 W/kg

Date: 2013/01/22

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116

Facsimile: +81 596 24 8124